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ABSTRACT

This is the final report of the Financial Plan Project for Colleges and Universities. Its primary purpose is to present proposals on a financial plan for Alberta universities and public colleges. Following a brief review of financing postsecondary education in Canada, it focuses on the last ten years of Alberta practice; the treatment is extensive. The current planning program is explained in this context, and technical issues and direction, analysis of specific alternatives, and conclusions and recommendations are included. (MSE)

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# A Financial Plan for Alberta Colleges and Universities

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**FINANCIAL PLAN PROJECT**
FOR COLLEGES AND UNIVERSITIES

TELEPHONE: 403-289-8885

1977-03-31

The Honorable Dr. A. E. Hohol
Minister
Alberta Advanced Education and Manpower
Legislative Building
Edmonton, Alberta
T5K 2B6

Dear Dr. Hohol:

It is a pleasure to present this final volume which gives the research results and makes proposals arising out of the Financial Plan Project. This final report, together with four companion volumes, constitutes a set which comprehensively reports and documents the project. The other volumes are Planning Paper One: A Framework, Planning Paper Two: A Data Base, Planning Paper Three: Reference Group Study of Alternatives, and Financial Plan Project Supplementary Reference Documents File.

I trust that the project proposals will be of immediate practical usefulness in financial planning in Alberta advanced education. Also, I hope that project materials will be helpful on a continuing basis to you and your staff.

Finally, I wish to thank you and your colleagues for offering me and my associates the opportunity to pursue the challenge of this project.

Yours sincerely,

Bernard S Sheehan

Bernard S. Sheehan
Director

BSS/mb

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We met with each of the institutional presidents on more than one occasion and each time came away better informed on the problems and the prospects of financial planning. Many others in the institutions, including senior administrators, members of boards of governors, officials of faculty associations, and students shared their technical knowledge and insights with us freely. We were greatly assisted by those who wrote to us and answered the questions posed in the several planning papers.

We are especially indebted to the members of the Project Reference Group who were appointed by the institutions to assist project work. Individually these people provided much of the data and Alberta institutional information which, of course, were essential to project research and the formulation of proposals. Moreover, the Group met many times to review project staff ideas and to offer constructive criticism and advice. The members of the Project Reference Group are: Clair Batty, The University of Lethbridge, Dean D. Cooper, Lethbridge Community College, Gary R. Frey, The Banff Centre, N. Beryl Hastings, Grande Prairie Regional College, Lorne C. Leitch, The University of Alberta, Robert J. Lilge, Grant MacEwan Community College, A. D. Parkkari, Southern Alberta Institute of Technology, Ed Schmidt, Mount Royal College, Donald A. Seastone, The University of Calgary, Barry L. Snowden, Athabasca University, J. O. Starritt, Northern Alberta Institute of Technology, Roy A. Swanson, Red Deer College, Melvin S. Tagg, Medicine Hat College. Dr. Seastone coordinated the Reference Group and greatly facilitated our work.

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Bernard S. Sheehan
Calgary, Alberta
March 31, 1977

## TABLE OF CONTENTS

Page

I. INTRODUCTION ---------------------------------------- 1

  A. Project Terms of Reference and Guidelines ---------------- 1
    a. Project Guidelines -------------------------------- 2

  B. Methodology of the Project ------------------------------ 4
    a. Project Evolution and Procedures --------------------- 4
      1. Planning Paper One: A Framework ------------------ 5
      2. Planning Paper Two: A Data Base ------------------ 6
      3. Project Reference Group Criteria and Planning Paper Three ------------------------------------------ 7
    b. Philosophy of the Project Approach ------------------- 8

  C. Financial Plan Project Report - An Overview of this Volume- 10

II. RECENT EXPERIENCE IN FINANCIAL PLANNING ---------------------- 15

  A. Financing Postsecondary Education in Canada --------------- 15

  B. Alberta Practice in Financial Planning -------------------- 20
    a. University Financing Techniques ---------------------- 20
      1. Alberta Universities Commission Period ------------ 22
      2. The Three-Year Grants Scheme --------------------- 33
    b. Public College Financing Techniques ------------------ 37
      1. Alberta Colleges Commission Period ---------------- 38
      2. The Period 1973-74 to 1975-76 -------------------- 39
    c. Universities and Public Colleges Financing for 1976-77- 41
    d. Operating Grants - A Historical Perspective ----------- 44

III. PLANS AND PLANNING ------------------------------------------- 49

  A. Relationship of Planning to Resource Allocation ----------- 49
    a. Early Comprehensive Plans ---------------------------- 50
    b. Planning and Analysis -------------------------------- 53
    c. Planning and Financing ------------------------------- 53

  B. General Planning Processes in Postsecondary Education ----- 56
    a. Goals ------------------------------------------------ 59
      1. Definition of Goals ------------------------------ 59
      2. Goals and Public Policy -------------------------- 60
      3. Operative vs. Official Goals --------------------- 61
      4. Value of Goals ----------------------------------- 62
    b. Objectives ------------------------------------------- 62
      1. Definition of Objectives ------------------------- 62
      2. Consensus on Objectives -------------------------- 63
      3. Extent to Which Objectives are Met --------------- 65
      4. Priorities Among Objectives ---------------------- 66
    c. Planning of Programs --------------------------------- 68
      1. Definition of Programs --------------------------- 68
      2. Program Planning and Financial Guidelines -------- 69
      3. Identifying Financial Implications of Program Alternatives ---------------------------------- 70

TABLE OF CONTENTS (Continued) Page

d. Reporting and Evaluation -------------------------------- 73
  1. Accountability ---------------------------------------- 73
  2. Report on Activities and Outcomes ----------------- 75
  3. Evaluation of Activities and Outcomes ------------- 77
    i. Evaluation of Outcomes ----------------------- 77
    ii. Organizational Evaluation as a Continuous Process ---------------------------------- 78
    iii. Nature of Evaluation in Postsecondary Education ----------------------------------- 78
    iv. Feedback: A Cyclical Planning Process ------ 81

C. Constraints, Concerns and Benefits Related to Planning ---- 81
  a. The Decision-Making Context --------------------------- 81
  b. Comprehensive Planning: Concerns and Benefits -------- 84
  c. Value of the Planning Process ------------------------ 86

D. Planning in Alberta Advanced Education ------------------ 87
  a. Historical System-Wide Planning in Alberta ----------- 88
  b. System Level Goals and Objectives -------------------- 91
  c. Goals, Objectives and Related Actions ----------------- 95
  d. Current System Level Planning ------------------------ 102
    1. Program Coordination Policy ---------------------- 103
      i. Institutional Role Statements --------------- 104
      ii. Program Approval/Financial Appropriations --- 106
    2. Possible Elaboration of Program Coordination in Relation to Financing --------------------------- 106
      i. System and Sector Roles and Mandates: Program and Service Policies ------------- 107
      ii. System-Wide Growth Plans ------------------- 108
      iii. Defining and Identifying Programs in Relation to Costs -------------------------------- 111
      iv. System Responsibilities for Programs -------- 112
      v. Relationship of Planning to Financing in Alberta ---------------------------------- 113

E. Comprehensive Long-Range Planning and Financing in Other Jurisdictions: Some Alberta and California Comparisons - 117
  a. Provincial Long-Range Planning and Financing ---------- 117
  b. Master Planning --------------------------------------- 119
  c. Differentiation of Institutional Function ------------- 122
    1. Institutional Functions Related to Projections of Enrolment and Expenditure ---------------------- 124
    2. Other Effects of Prescribing Institutional Functions -------------------------------------- 125
  d. Recent Planning at the System and Segment Levels ------ 126
    1. The Postsecondary Commission --------------------- 126
    2. The Commission Plan Related to Alberta ------------ 128
      i. Context of the Planning Process ------------ 128
      ii. Statement of Goals/Objectives for Postsecondary Education ---------------------- 130
      iii. Priorities Among Goals/Objectives ----------- 131
      iv. Plans of Action and Accountability ---------- 132
      v. Evaluation and Program Review -------------- 133

TABLE OF CONTENTS (Continued) Page

3. Planning in the Segments 134
  i. University of California Academic Plan, Phase II 135
  ii. Comparisons to Planning in the Alberta System 136
  iii. Planning in the California State University and Colleges 138
e. Evolution of Comprehensive Planning and a Financial Plan for Alberta 140

IV. TECHNICAL ISSUES AND DIRECTIONS 143

A. Classification Structure for Institutional Programs 145

B. A Hierarchy of Information Systems 148

C. Financing Techniques 150
  a. Students as Recipients 151
  b. Institutions as Recipients 153
  c. Financing Techniques as Means 154
    1. Incremental: Non-Formula 155
    2. Incremental: Formula 156
    3. Zero-Based: Non-Formula 156
    4. Zero-Based: Formula 156
  d. "Outcomes vs. Activities" Problem 158

D. The Algebraic Anatomy of Formulas 161

E. The Data Base for Alternative Financing Techniques 163

F. Cost Analysis 166

G. Outcomes Measures 169

H. Student Enrolment - Projections or Forecasts? 171

I. Some Views on Costs and Funding 175
  a. Virtual Cost 176
  b. Institutional Perspectives 178
  c. Instruction Program as the Basis for Funding 179

J. On the Question of Quality 182

K. Faculty Collective Bargaining 184

L. A Midcourse Focussing of Alternatives 186
  a. Students as Recipients 187
  b. Non-Formula-As-Means 192
    1. Universities 192
      i. Strengths 192
      ii. Weaknesses 196
    2. Public Colleges 198
      i. Strengths 198
      ii. Weaknesses 199

V. ANALYSIS OF SPECIFIC ALTERNATIVES 201

A. Introduction 201

TABLE OF CONTENTS (Continued) Page

a. Steps in the Application with Alberta Data ------------- 204
b. Limitations and Constraints of Alberta Data Base in Alternative Applications ---------------------------- 205
c. Separation of Faculties of Medicine for Test Purposes -- 208
1. Alternative Test Circumstances --------------------- 210

B. Surveyed Jurisdictions' Financing Techniques --------------- 212
a. Use of the Formula in the Budget/Allocation Process ---- 213
b. The Financing Techniques "Tree" ----------------------- 213
c. The Algebraic Structure of the Formula ---------------- 213
d. Classification According to Detail -------------------- 214

C. Description of Surveyed Jurisdictions --------------------- 216
a. Mississippi Universities ------------------------------ 217
1. Description of the Financing Technique ------------ 217
2. Use of the Formula --------------------------------- 220
3. Application of the Formula with Alberta Data Base -- 222
4. Evaluation of the Formula with Alberta Data Base --- 225
b. Tennessee ---------------------------------------------- 228
1. Description of the Financing Technique ------------ 228
2. Use of the Formula --------------------------------- 232
3. Application of the Formula with Alberta Data Base -- 232
4. Evaluation of the Formula with Alberta Data Base --- 235
c. Texas Universities and Senior Colleges ---------------- 237
1. Description of the Financing Technique ------------ 237
2. Use of the Financing Technique -------------------- 240
d. Ohio --------------------------------------------------- 241
1. Description of the Financing Technique ------------ 241
2. Use of the Financing Technique -------------------- 242
e. Oklahoma ----------------------------------------------- 244
1. Description of the Financing Technique ------------ 244
2. Use of the Financing Technique -------------------- 246
f. Florida Universities ----------------------------------- 246
1. Description of the Financing Technique ------------ 247
2. Use of the Financing Technique -------------------- 249
3. Application of the Formula with Alberta Data Base -- 250
4. Evaluation of the Formula with Alberta Data Base --- 252
g. Washington --------------------------------------------- 255
1. Description of the Financing Technique ------------ 255
2. Use of the Financing Technique -------------------- 257
3. Application of the Formula with Alberta Data Base -- 258
4. Evaluation of the Formula with Alberta Data Base --- 258
h. Oregon ------------------------------------------------- 260
1. Description of the Financing Technique ------------ 261
2. Proposed Use of the New Financing Technique -------- 265
i. Colorado ----------------------------------------------- 265
1. Description of the Financing Technique ------------ 266
2. Use of the Financing Technique -------------------- 268
j. Alberta Universities ----------------------------------- 270
1. Description of the Financing Technique ------------ 270
2. Application to Public Colleges Data Base ----------- 272
3. Application to Alberta System ---------------------- 272
4. Evaluation of the Formula with Alberta Data Base --- 275

TABLE OF CONTENTS (Continued) Page

k. Ontario Colleges of Applied Arts and Technology -------- 276
  1. Description of the Financing Technique ------------- 277
  2. Use of the Financing Technique ------------------- 279
  3. Application of the Formula with Alberta Data Base -- 280
  4. Evaluation of the Formula with Alberta Data Base --- 281
l. Collèges D'Enseignement Général et Professionnel - Quebec 287
  1. Description of the Financing Technique ------------- 287
  2. Use of the Financing Technique ------------------- 289

D. Observations on Formulas Used in Surveyed Jurisdictions ---- 290

E. Development of Variations ---------------------------------- 294
a. Rate Formula ------------------------------------------- 298
  1. Description of an Alternative Methodology ---------- 298
  2. Application of the Rate Formula with Alberta Data Base ------------------------------------------ 300
  3. Evaluation of the Rate Formula -------------------- 302
b. Category Formula --------------------------------------- 303
  1. Description of an Alternative Methodology ---------- 303
  2. Application of the Category Formula with Alberta Data Base ---------------------------------------- 304
  3. Evaluation of the Formula with Alberta Data Base --- 304
c. The Elementary Model ----------------------------------- 306
  1. Description of the Financing Technique ------------- 306
  2. Application of the Elementary Model with Alberta Universities Data Base -------------------------- 309
    i. Variations Using Weekly Student Hours as Student Load ------------------------------ 310
    ii. Variations Incorporating Graduate Supervision- 312
    iii. Variations Using Course Enrolees as Student Load ---------------------------------------- 312
    iv. Variations Including Multipliers for The University of Lethbridge ----------------- 314
  3. Application of the Elementary Model with Public Colleges Data Base ------------------------------ 314
  4. Application of the Elementary Model System-wide ---- 314
  5. Evaluation of the Application of the Elementary Model -------------------------------------------- 318
  6. Further Analytical Variations of the Elementary Model -------------------------------------------- 320
    i. The Enrolment Unit Formula ------------------ 321
    ii. The CAAT's Formula ------------------------- 323

VI. CONCLUSIONS AND RECOMMENDATIONS

A. Introduction ----------------------------------------------- 325

B. Financial Plan Proposal ------------------------------------ 326
a. Financing Technique Proposal -------------------------- 326
b. Allocation Formula Proposal --------------------------- 328
c. Proposals on Procedures and Other Recommendations to Assist Implementation and Maintenance of the Plan ---- 329

TABLE OF CONTENTS (Continued) Page

1. Triennial Grant Commitment ---------- 329
2. Phasing-In Procedure ---------- 330
3. Block Grant Principle ---------- 331
4. Inflation ---------- 331
5. Financial Year Uniformity ---------- 331
6. Information for Planning and Management ---------- 332
7. Institutional Advice on Financial Planning Procedures 332

C. Elaboration and Illustration of Proposals ---------- 334
a. Discussion of Allocation Formula ---------- 335
b. The Enrolment Weights ---------- 336
c. The Institutional Characteristics ---------- 340
1. An Analytical Alternative Determination of K ---------- 345
d. Test Allocation for Base Years ---------- 352

D. Discussion and Evaluation of Proposals ---------- 355
a. Project Terms of Reference and Guidelines ---------- 355
b. Issues and Concerns Current in Alberta ---------- 364
c. Reference Group Criteria ---------- 365

E. Continuing Requirements of Financial Planning (The Widening of the Hourglass) ---------- 375
a. Considerations in the Evolution of a Financial Plan ---------- 377

BIBLIOGRAPHY ---------- 383

APPENDIX A: FINANCIAL PLAN PROJECT - TERMS OF REFERENCE ---------- 399

APPENDIX B: REFERENCE GROUP CRITERIA ---------- 403

APPENDIX C: CROSS-CANADA SURVEY OF FUNDING PROCEDURES IN POSTSECONDARY EDUCATION ---------- 407
A. Federal Involvement in Postsecondary Planning and Financing ---------- 409
B. Review of Provincial Financial Planning Techniques and Procedures ---------- 410

APPENDIX D: GREAT BRITAIN UNIVERSITIES ---------- 437
A. The University Grants Committee ---------- 440
B. University Financing: Recurrent Grants ---------- 441
C. Planning and Allocating for the 1972-77 Quinquennium- 443
a. Allocation of Recurrent Grants ---------- 446
D. New Procedure to Meet Recurrent Cost Inflation ---------- 447
E. Academic Salaries - Collective Bargaining ---------- 448
F. Academic Staffing ---------- 449
G. Committee 'Guidance' to Universities ---------- 449
H. Annual Survey for 1974-75 ---------- 451
I. Some Comments from Another Perspective ---------- 453

APPENDIX E: FINANCIAL PLANNING IN POSTSECONDARY EDUCATION IN AUSTRALIA ---------- 457
A. Triennium Funding ---------- 460
B. Supplementary Grants ---------- 462
C. Changes in Triennium Funding ---------- 463

TABLE OF CONTENTS (Continued) Page

D. The Shift to Government Guidelines ------------------ 464
E. Student Tuition ------------------------------------- 465
F. System-Wide Planning -------------------------------- 466

APPENDIX F: ENROLMENT UNIT WEIGHTINGS COMMITTEE REVIEW OF ALTERNATIVES 467

APPENDIX G: UNIVERSITIES OPERATING GRANT ALLOCATION FORMULAS 1967-68 to 1975-76 ------------------------------------ 473

APPENDIX H: FIRST CALL AND NON-FORMULA OPERATING GRANTS TO ALBERTA UNIVERSITIES 1967-68 to 1976-77 ----------------------- 479

APPENDIX I: OPERATING GRANTS FOR UNIVERSITIES 1973-74 to 1975-76 THE ORIGINAL THREE-YEAR OPERATING GRANTS SCHEME ------- 485

APPENDIX J: PROGRAM DEVELOPMENT GRANTS TO ALBERTA UNIVERSITIES 1974-75 to 1976-77 AND PUBLIC COLLEGES 1974-75 and 1975-76 ------------------------------------------------ 491

APPENDIX K: PUBLIC COLLEGES OPERATING BUDGETS SUBMISSION FORMAT (SUMMARIES) 1975-76 ---------------------------------- 495

APPENDIX L: ADVISORY LETTER TO PUBLIC COLLEGES 1975-76 FINANCIAL GUIDELINES ----------------------------------------------- 501

APPENDIX M: ALBERTA UNIVERSITY SYSTEM ENROLMENT UNIT WEIGHTINGS 1972-73 ------------------------------------------------- 505

APPENDIX N: SELECTED MATERIALS FROM CALIFORNIA POSTSECONDARY EDUCATION COMMISSION PLANNING DOCUMENT ---------------- 509

APPENDIX O: SELECTED MATERIALS FROM UNIVERSITY OF CALIFORNIA PLANNING DOCUMENTS ------------------------------------ 521

APPENDIX P: SELECTED MATERIALS FROM CALIFORNIA STATE UNIVERSITY AND COLLEGES PLANNING DOCUMENT --------------------------- 525

APPENDIX Q: COLLECTIVE BARGAINING AND FINANCIAL PLANNING ------------ 533
A. Legal Issues --------------------------------------- 536
    a. Three Directions of Collective Bargaining ------- 538
    b. Full Collective Bargaining Rights --------------- 538
    c. Three Stages of Collective Bargaining ----------- 540
        1. Nativity Stage ------------------------------ 541
        2. Adolescent Stage ---------------------------- 543
        3. Maturity Stage ------------------------------ 543
B. Education Decision-making Issues -------------------- 544
    a. Traditional 'Labor/Management' Relationships ---- 545
    b. Models of Governance ---------------------------- 550
C. Economic Issues ------------------------------------- 554
    a. Productivity Bargaining ------------------------- 555
    b. Province-wide Bargaining ------------------------ 557
    c. Financial Planning and Collective Bargaining: Mutual Policy Variables ----------------------- 561
        1. The Elementary Model ------------------------ 561
        2. Faculty Flow Models ------------------------- 563
        3. Inter-Institutional Information ------------- 566

## TABLE OF CONTENTS (Continued)

Page

APPENDIX R: STUDENT ASSISTANCE PROGRAMS ---------------------------- 569
- A. The Canada Student Loans Program -------------------- 571
- B. Programs in the Provinces and Territories ----------- 574
- C. The United States Guaranteed Student Loan Program --- 582
- D. Specific University Sponsored Plans ---------------- 583
  - a. Yale Tuition Postponement Plan 1974-75 ---------- 583
  - b. The Duke University Plan ----------------------- 584
  - c. York (Toronto) MBA Plan ------------------------ 584

APPENDIX S: OUTCOME VARIABLES AND MEASURES ----------------------- 587

APPENDIX T: AGREED MEASURES OF OUTCOMES --------------------------- 591

APPENDIX U: SUPPORTING INFORMATION FOR THE ANALYSIS OF SPECIFIC ALTERNATIVES ---------------------------------------- 595

APPENDIX V: CONTENTS OF FINANCIAL PLAN PROJECT PLANNING PAPERS ------ 617

APPENDIX W: PROJECT TASK ON ALBERTA EDUCATIONAL GOALS AND OBJECTIVES- 623

## LIST OF TABLES

TABLE 2.1: FULL-TIME FALL ENROLMENTS IN ALBERTA POSTSECONDARY INSTITUTIONS - SELECTED YEARS ------------------------ 21

TABLE 2.2: ALBERTA ADVANCED EDUCATION AND MANPOWER PROGRAM EXPENDITURES - 1974-75 TO 1976-77 -------------------- 22

TABLE 2.3: ANNUAL INSTITUTIONAL NET OPERATING EXPENSES AND TOTAL PROVINCIAL OPERATING GRANTS ------------------------- 23

TABLE 2.4: PROVINCIAL OPERATING GRANT PROVIDED TO ALBERTA UNIVERSITIES COMMISSION ----------------------------- 25

TABLE 2.5: UNIVERSITIES COMMISSION OPERATING GRANT ALLOCATIONS ----- 28

TABLE 2.6: ENROLMENT UNITS AND DOLLAR FORMULA GRANT VALUE PER ENROLMENT UNIT 1967-68 TO 1972-73 -------------------- 29

TABLE 2.7: ENROLMENT UNITS AND DOLLAR FORMULA GRANT VALUE PER ENROLMENT UNIT 1973-74 TO 1975-76 -------------------- 35

TABLE 2.8: ALBERTA UNIVERSITIES OPERATING GRANT ALLOCATIONS UNDER THREE-YEAR OPERATING GRANTS SCHEME ------------------- 36

TABLE 2.9: OPERATING GRANTS - ALBERTA PUBLIC COLLEGES 1969-1975 ---- 40

TABLE 2.10: OPERATING GRANTS TO UNIVERSITIES AND PUBLIC COLLEGES 1976-77 --------------------------------------------- 43

TABLE 5.1: APPLICATION OF THE MISSISSIPPI UNIVERSITIES FORMULA TO THE UNIVERSITIES SECTOR ---------------------------- 224

TABLE 5.2: APPLICATION OF THE TENNESSEE FORMULA TO THE UNIVERSITIES SECTOR ------------------------------------------------ 235

TABLE OF CONTENTS (Continued) Page

TABLE 5.3: APPLICATION OF THE FLORIDA UNIVERSITIES FORMULA TO THE UNIVERSITIES SECTOR ---------------------------------- 251

TABLE 5.4: FACULTIES AND SCHOOLS EXPENSES DETERMINED USING FTE CALCULATIONS IN THE FLORIDA UNIVERSITIES APPLICATION -- 253

TABLE 5.5: APPLICATION OF THE WASHINGTON FORMULA TO THE UNIVERSITIES SECTOR ---------------------------------- 259

TABLE 5.6: APPLICATION OF THE ALBERTA UNIVERSITIES FORMULA TO THE COLLEGES SECTOR ------------------------------------- 273

TABLE 5.7: APPLICATION OF THE ALBERTA UNIVERSITIES FORMULA TO THE SYSTEM ---------------------------------------------- 274

TABLE 5.8: APPLICATION OF THE ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA TO THE UNIVERSITIES SECTOR ------- 281

TABLE 5.9: APPLICATION OF THE ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA TO THE COLLEGES SECTOR - VARIATION 1 ------------------------------------------- 282

TABLE 5.10: APPLICATION OF THE ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA TO THE COLLEGES SECTOR - VARIATION 2 ------------------------------------------- 283

TABLE 5.11: APPLICATION OF THE ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA TO THE SYSTEM ------------------ 284

TABLE 5.12: APPLICATION OF THE RATE FORMULA TO THE UNIVERSITIES SECTOR (INSTITUTIONAL GROUP III RATES APPLIED TO THE UNIVERSITY OF LETHBRIDGE) ---------------------------- 301

TABLE 5.13: APPLICATION OF THE RATE FORMULA TO THE UNIVERSITIES SECTOR (INSTITUTIONAL GROUP I RATES AND A MULTIPLIER APPLIED TO THE UNIVERSITY OF LETHBRIDGE) ------------- 301

TABLE 5.14: APPLICATION OF THE CATEGORY FORMULA TO THE SYSTEM ------- 305

TABLE 5.15: APPLICATION OF THE ELEMENTARY MODEL TO THE UNIVERSITIES SECTOR - WEEKLY STUDENT HOURS AS THE STUDENT LOAD MEASURE ---------------------------------------------- 311

TABLE 5.16: APPLICATION OF THE ELEMENTARY MODEL TO THE UNIVERSITIES SECTOR - COURSE ENROLEES AS THE STUDENT LOAD MEASURE -- 313

TABLE 5.17: APPLICATION OF THE ELEMENTARY MODEL TO THE UNIVERSITIES SECTOR - WEEKLY STUDENT HOURS AS THE STUDENT LOAD MEASURE - INCORPORATING THE UNIVERSITY OF LETHBRIDGE MULTIPLIER ----------------------------------------- 315

TABLE 5.18: APPLICATION OF THE ELEMENTARY MODEL TO THE UNIVERSITIES SECTOR - COURSE ENROLEES AS THE STUDENT LOAD MEASURE - INCORPORATING THE UNIVERSITY OF LETHBRIDGE MULTIPLIER - 316

TABLE 5.19: APPLICATION OF THE ELEMENTARY MODEL TO THE PUBLIC COLLEGES SECTOR - WEEKLY STUDENT HOURS AS THE STUDENT LOAD MEASURE ----------------------------------------- 317

TABLE 5.20: APPLICATION OF THE ELEMENTARY MODEL TO THE SYSTEM - INSTITUTIONAL VARIABLES ----------------------------- 318

TABLE OF CONTENTS (Continued) Page

TABLE 6.1: AAEM OPERATING GRANTS PER UNIVERSITY LOWER LEVEL AND PUBLIC COLLEGE FTE STUDENT ---------------------------- 337

TABLE 6.2: VALUES OF ENROLMENT WEIGHTS FOR TWO BASE YEARS ---------- 339

TABLE 6.3: PROGRAM COSTS BY LEVEL FROM THE UNIVERSITY OF ALBERTA AND THE UNIVERSITY OF CALGARY COST STUDIES --------------- 341

TABLE 6.4: ENROLMENT UNITS PER FTE STUDENT IN ALBERTA UNIVERSITIES - 341

TABLE 6.5: SIMULATED DISTRIBUTION OF INSTITUTIONAL GRANTS FOR BASE YEARS USING AVERAGE ANNUAL VALUES OF ENROLMENT WEIGHTS- 342

TABLE 6.6: NUMERICAL VALUES FOR THE INSTITUTIONAL CHARACTERISTICS -- 344

TABLE 6.7: ILLUSTRATION OF PROPOSED ALLOCATION FORMULA SHOWING SIMULATED DISTRIBUTIONS OF FORMULA GRANT COMPONENTS FOR THE BASE YEARS ----------------------------------- 344

TABLE 6.8: ILLUSTRATION OF CERTAIN INSTITUTIONAL CHARACTERISTIC FACTORS BY COMPARISON OF SIMULATED DISTRIBUTIONS $D_1$ AND $D_2$ FOR THE BASE YEARS --------------------------------- 348

TABLE 6.9: ARRAY OF NUMERICAL VALUES OF COMPOSITE FACTORS OF INSTITUTIONAL CHARACTERISTICS FOR EACH YEAR OF THE BASE BIENNIUM --------------------------------------------- 350

APPENDIX F -
TABLE 1: ACTUAL AND SIMULATED OPERATING GRANT ALLOCATIONS AND DISTRIBUTIONS 1967-68 TO 1972-73 --------------------- 471

APPENDIX J -
TABLE 1: PROGRAM DEVELOPMENT GRANTS TO ALBERTA UNIVERSITIES ------ 493

TABLE 2: PROGRAM DEVELOPMENT GRANTS TO PUBLIC COLLEGES 1974-75 AND 1975-76 --------------------------------------------- 494

APPENDIX R -
TABLE 1: CROSS-CANADA SURVEY OF STUDENT ASSISTANCE PROGRAMS ------ 572

APPENDIX U -
TABLE 1: MISSISSIPPI APPLICATION - DETAILED APPLICATION OF THE FORMULA TO THE UNIVERSITIES SECTOR ------------------- 597

TABLE 2: MISSISSIPPI APPLICATION - CALCULATED RATES PER COURSE ENROLEE FOR INSTITUTIONAL GROUP I -------------------- 598

TABLE 3: MISSISSIPPI APPLICATION - CALCULATED RATES PER COURSE ENROLEE FOR INSTITUTIONAL GROUP III ------------------ 599

TABLE 4: MISSISSIPPI APPLICATION - USE OF CAUBO DATA FOR ADJUSTMENT OF THE FORMULA ---------------------------- 600

TABLE OF CONTENTS (Continued)

Page

TABLE 5: TENNESSEE APPLICATION - BASES FOR DISTRIBUTION IN CATEGORIES ---------------------------------------- 602

TABLE 6: TENNESSEE APPLICATION - DERIVED GRANTS BY CATEGORY ------ 602

TABLE 7: TENNESSEE APPLICATION - CALCULATED RATES PER COURSE ENROLEE ---------------------------------------- 603

TABLE 8: FLORIDA APPLICATION - PLANT MAINTENANCE AND FTE FACULTY BASES ---------------------------------------- 604

TABLE 9: FLORIDA APPLICATION - DETAILED RATIOS FOR FTE FACULTY CALCULATIONS ---------------------------------------- 605

TABLE 10: WASHINGTON APPLICATION - DERIVED FTE FACULTY BASES ------ 606

TABLE 11: ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY APPLICATION - BASES FOR THE UNIVERSITIES SECTOR ------- 607

TABLE 12: ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY APPLICATION - BASES FOR THE COLLEGES SECTOR ----------- 608

TABLE 13: RATE FORMULA APPLICATION - DERIVED INSTRUCTIONAL BASE FOR GRANT DISTRIBUTIONS (INSTITUTIONAL GROUP III RATES APPLIED TO THE UNIVERSITY OF LETHBRIDGE) ------------- 609

TABLE 14: RATE FORMULA APPLICATION - CALCULATED RATES PER COURSE ENROLEE FOR INSTITUTIONAL GROUP I -------------------- 610

TABLE 15: RATE FORMULA APPLICATION - CALCULATED RATES PER COURSE ENROLEE FOR INSTITUTIONAL GROUP III ------------------ 610

TABLE 16: RATE FORMULA APPLICATION - DERIVED INSTRUCTIONAL BASES FOR GRANT DISTRIBUTION (INSTITUTIONAL GROUP I RATES APPLIED TO THE UNIVERSITY OF LETHBRIDGE) ------------- 611

TABLE 17: CATEGORY FORMULA APPLICATION - BASES FOR GRANT DISTRIBUTIONS ---------------------------------------- 612

TABLE 18: THE ELEMENTARY MODEL APPLICATION TO THE UNIVERSITIES SECTOR - WEEKLY STUDENT HOURS AS THE STUDENT LOAD MEASURE - DERIVED FTE FACULTY BASES ------------------ 613

TABLE 19: THE ELEMENTARY MODEL APPLICATION TO THE UNIVERSITIES SECTOR - COURSE ENROLEES AS THE STUDENT LOAD MEASURE - DERIVED FTE FACULTY BASES ----------------------------- 614

TABLE 20: THE ELEMENTARY MODEL APPLICATION TO THE PUBLIC COLLEGES SECTOR - WEEKLY STUDENT HOURS AS THE STUDENT LOAD MEASURE - DERIVED FTE FACULTY BASES ------------------ 615

## LIST OF FIGURES

FIGURE 2.1: TRENDS IN OPERATING GRANTS AND ENROLMENTS AT ALBERTA UNIVERSITIES ---------------------------------------- 45

TABLE OF CONTENTS (Continued) Page

FIGURE 2.2: TRENDS IN OPERATING GRANTS AND ENROLMENTS AT ALBERTA PUBLIC COLLEGES 46

FIGURE 3.1: CHARACTERISTICS OF A GENERAL PLANNING PROCESS (INSTITUTIONAL LEVEL) 58

FIGURE 3.2: INSTITUTIONAL ROLE STATEMENT INFORMATION 105

FIGURE 4.1: REVISED PROGRAM CLASSIFICATION STRUCTURE 147

FIGURE 4.2: HIERARCHY OF INFORMATION SYSTEMS 149

FIGURE 4.3: FINANCING TECHNIQUES DIAGRAM 152

FIGURE 4.4: ACTIVITIES/OUTCOMES VIEW OF INSTITUTIONS 157

FIGURE 4.5: INFORMATION CLASSES CORRESPONDING TO ALTERNATIVE FINANCING TECHNIQUES 165

FIGURE 4.6: CHARACTERISTICS OF METHODS FOR ANALYSIS OF FUTURE ENROLMENT 173

FIGURE 4.7: FACTORS CONTRIBUTING TO THE STUDENT'S DECISION TO ENROL 174

FIGURE 5.1: SUMMARY OF DATA ELEMENTS AVAILABLE 209

FIGURE 5.2: TEST ESTIMATES OF EXPENDITURES OF AAEM GRANTS IN THE FACULTIES OF MEDICINE 212

FIGURE 5.3: CLASSIFICATION OF FINANCING TECHNIQUES IN SURVEYED JURISDICTIONS 215

FIGURE 5.4: SAMPLE FORMAT OF PROPOSED EXPENDITURE PER FTE STUDENT IN A STUDENT CATEGORY 243

FIGURE 5.5: ENROLMENT UNIT WEIGHTS FOR PUBLIC COLLEGES 271

FIGURE 6.1: PROPOSED FINANCING TECHNIQUE 327

# I. INTRODUCTION

This is the final report of the Financial Plan Project for Colleges and Universities. It is one of five documents produced during the project and contains project research results and proposals. In this initial Chapter of the final report the terms of reference and project guidelines are presented. Also, the evolution of the project, including the procedural methodology and philosophy of the approach to the project, is sketched. The contents of the earlier planning papers are described. The final volume itself is introduced by a brief overview of the contents of each chapter and the numerous appendices.

## A. Project Terms of Reference and Guidelines

The terms of reference of the Financial Plan Project state that the purpose of the project is to recommend a financial plan and associated techniques and procedures for financing public colleges and universities. The terms of reference describe financial planning as a process which:

> ... facilitates the achievement of desired educational outcomes within a constrained resource environment and includes those methods, techniques and procedures which define recurrent (operating) resource requirements, as well as the means of estimating and allocating financial support requirements for institutions. Financial planning transcends any fiscal year and expresses financial strategy.

The aim, then, is to provide assistance to Alberta Advanced Education and Manpower (AAEM) and the institutions in the pursuit of their objectives by suggesting a clear and readily comprehensible plan, which contributes to equity and consistency in funding. Beyond this, the terms imply that desirable outcomes of the project and the plan, may include promotion of the practical integration of financial planning with all planning, reinforcement of rational institutional budgeting procedures, as well as encouragement for the evolution of improved information systems in support of management and planning decisions at all levels. The full terms of reference are given in Appendix A.

These terms of reference, the nature of the task and Alberta experience in funding advanced education, suggested a number of features of a practical financial plan. These were presented in *Planning Paper One: A Framework* (3)[1] and have been accepted as guidelines which describe and delimit the project. An appreciation of the project guidelines is important to an understanding of the project rationale, research emphasis, planning papers produced and the proposals.

## a. Project Guidelines

These guidelines describe a desirable financial plan as one which:

1) Will accommodate present Alberta advanced education objectives and policies and yet be flexible enough so that new programs and changes in policy on existing programs may also be accommodated with minimal adjustment

2) Will take into account the concerns of those affected by financial planning

3) Will provide an objective means of allocating available funds among institutions within each sector under study

4) Will not specify the total level of funding available to public colleges or universities and will not be concerned with total operating funds voted to AAEM

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[1] Numbers in brackets refer to pages in the designated earlier documents.

5) Will not be designed or intended for use as a control mechanism for institutional expenditures

6) Will not be designed or intended for use as a basis for internal allocation nor as a spending pattern within any institution

7) Will be workable with institutional information systems existing at the time of implementation and capable of evolving with the information systems towards a desired level of sophistication without the need for parting from basic characteristics and definitions of the plan

8) Will recognize the relationship among financial, academic and physical planning

9) Will recognize societal demand on public colleges and universities for varied educational services as a factor in financial planning

10) Will not attempt to allocate funds on a basis which separates academic departmental research from instruction. However, the plan may deal explicitly with research as well as public service as primary programs

11) Will be as comprehensive as possible in its implementation, so that Alberta funding outside the plan is minimal and based on agreed principles

12) Will recognize that shifts in institutional funding levels should be made thoughtfully and accomplished carefully over reasonable periods of time

13) Will assume that the deleterious effects of inflation on institutions are taken into account in determination of the total operating funds voted to AAEM, and hence will not be primarily concerned with the problems caused by inflation

14) Will regard total institutional operating revenues but will not

count capital or private funds (e.g., donations) in the "total" for financial plan purposes. Tuition incomes are included in the total

15) Will not be based on the results of any advanced education system-wide institutional program outcomes study

16) Will not be based on the results of any advanced education system-wide institutional program cost study

17) Will not encourage unnecessary proliferation of programs or institutional activities as a means to gain higher institutional or system-wide funding levels when the plan is considered in the overall context of Alberta policies and procedures

18) Will attempt to conciliate the concern of institutions that improvement in institutional effectiveness will lead to corresponding reduction in funding. Hence, the plan will attempt to provide an incentive for efficient institutional operation.

## B. Methodology of the Project

### a. Project Evolution and Procedures

The project was announced in September 1975 and the project terms of reference were issued to the institutions by the Minister of Avanced Education and Manpower. The project director met during Fall 1975, with each president and other institutional officials as well as senior officials of AAEM. The purpose of these meetings was to determine what general issues, concerns and ideas in our jurisdiction, impinged on financial planning and what influence these items have and ought to have on financial planning. The series of meetings was very helpful and the issues and concerns raised during these interviews are digested in Section IV of *Planning Paper One*.

## 1. Planning Paper One: A Framework

The original and primary purpose of this first planning paper was to assist project staff in obtaining input and counsel from those interested in and affected by financial planning for Alberta public colleges and universities. However, as a result of the numerous initial interviews, it was evident that continuing discussion would have to be focused by means of a framework and a language. This is what *Planning Paper One* sought to provide. There was no intent to limit the discussion, but to recognize that a context and certain technical concepts needed to be agreed upon, so the discussion would be most effective, given project terms of reference and constraints of time and resource. Thus, the initial planning paper is not a position paper, rather a discussion and reaction generating document. Consequently, *Planning Paper One* moved beyond presentation of issues and concerns to include presentation of numerous current concepts in higher education and management, which relate to financial planning in order to enhance discussion by a diverse selection of people which the project team hoped to involve; that is, individuals from among AAEM officials, institutional people at the board level, presidents, principle academic and financial officers, faculty members and students.

As a result of this dual approach of developing simultaneously the issues and concerns as well as a technical framework for research and discussion, *Planning Paper One* was able to narrow effectively the alternatives down to four main directions and to invite discussion within a manageable context. Following its review and approval by AAEM officials, *Planning Paper One* was issued in April 1976 and has subsequently been distributed to about one hundred people.

2. Planning Paper Two: A Data Base

The terms of reference of the project anticipated that the study would include:

> ... the gathering, analysis, and presentation of historical, current and projected information related to financial planning, including interprovincial and interjurisdictional comparative data where relevant.

*Planning Paper Two: A Data Base* provides 250 pages of data relevant to financial planning in Alberta and was completed in July 1976, to serve the following three purposes:

1) To present available information in order that its usefulness, comparability, limitations and hence its value in support of financial planning, including the testing of alternative financing techniques, be assessed

2) To indicate the present information system capabilities of the institutions to supply information useful for financial planning

3) To illustrate and discuss data which can serve institutional planning and management as well as Alberta financial planning purposes and thereby suggest development of institutional information systems better suited for both purposes.

*Planning Paper Two* is a first of its kind in Alberta and there has been the suggestion that the volume might be a model of what should be an annual report. It describes in as clear as possible terms, the state of institutional information bases for financial planning. This paper presents, discusses and evaluates information system capacities from the perspective of financial planning and the testing of alternative plans and planning ideas. Together, the first two planning papers provide an informational base for evolving a financial plan in a way designed to permit knowledgeable individuals to evaluate the research and development process and to contribute to its improvement.

Since this second planning paper had the same primary objective as the first, to assist project staff obtain input and counsel from those interested in and affected by financial planning for Alberta public colleges and universities, it was also widely distributed. The project staff discussed both planning papers with numerous individuals in Alberta higher education and many answered the questions compiled at the end of each document. There was never any attempt to seek institutional consensus, but rather always to seek advice and counsel from "technically" competent and experienced individuals in the institutions and government.

### 3. Project Reference Group Criteria and Planning Paper Three

To facilitate contact with the institutions, the institutional presidents following consultation with the project director, set up a representative group, one member appointed by each president, and this group has been designated as the Project Reference Group. Besides many meetings and communications between individual members of the Reference Group and project staff, beginning in Fall 1976, the group and staff held four day-long meetings. In order to facilitate communication with the Reference Group, project staff prepared (in instalments for meetings) *Planning Paper Three: Reference Group Study of Alternatives*. The study of specific alternatives had as its purpose to gain insights which:

1) Lead to more useful alternatives by the identification of specific strengths, weaknesses and characteristics of alternatives which are financing techniques or component elements of financing techniques

2) Improve understanding of what may be considered suitable and practical criteria by gaining familiarization with implications of initially tested criteria

3) Improve knowledge and intuition with respect to analytical properties of classes of alternatives when applied system-wide to Alberta universities and colleges

4) Better appreciate limitations of existing data base for sector- and system-wide financial planning.

To assist study of the alternatives, the Reference Group developed a set of criteria to provide a preliminary evaluation of the alternatives. These criteria are shown in order of priority in Appendix B and along with project guidelines, have been accepted by the project staff as criteria against which project proposals should be judged.

The meetings of the Reference Group and discussions with individual members of the group were helpful to the project staff in the research process of analyzing, synthesizing and narrowing financial planning alternatives.

### b. Philosophy of the Project Approach

The allocation problem is a fascinating one which is "solved" each year in each jurisdiction, but which seems rarely to be addressed from a theoretical or fundamental point of view. From the early discussions of the project with AAEM officials, it was evident that when all circumstances are considered only a general or theoretical problem approach would net the sort of total response to the agreed need to determine the best allocation mechanism whether it was something new or that currently used. Thus, from the outset, the project methodology was dominated by three imperatives:

1) To view the problem in the broadest terms, so that one is confident that the largest possible number of alternatives is included in the study

2) To make practical proposals for immediate implementation

3) To recognize and to allow for changes which impact financial planning.

These three imperatives and the rest of the context of the allocation problem suggest what we called the "hourglass" approach. The wide top of the hourglass represents the need to examine all alternatives; the neck at the centre of the hourglass stands for the practical solution for today's situation; and the widening from the centre towards the bottom of the hourglass symbolizes the increased opportunities for new approaches in the future. Therefore, the methodology which characterizes this project, ensured that we would study the widest spectrum of alternatives and that we would provide a sound basis for moving from a practical proposed solution to new vistas as opportunities arise.

The following five notions and their relationship one to the other demonstrate the influence of the hourglass philosophy on project research. The (1) technical context of financial planning, that is, financial planning as a component of all system and institutional planning and management must be understood. This in turn requires adaptation and invention of a (2) technical framework and a language, so that (3) alternative plans and financing techniques may be developed, described and evaluated along with their supporting (4) data base against (5) temporal realities of the framework and jurisdictional context. Thus, the methodology leads to the production of the planning papers and the style and content of this document which is intended to provide a standard reference text for continuing study of financial planning in Alberta advanced education.

## C. Financial Plan Project Report - An Overview of this Volume

The primary purpose of this report is to present proposals on a financial plan for Alberta universities and public colleges in accordance with the project terms of reference. Perhaps an equally important purpose in the long-run will turn out to be the documentation of the research which lead to these proposals and which should continue to be useful to the ongoing evolution of planning in Alberta advanced education. The recent experience in financial planning in Alberta is the subject of the second Chapter of this report. Following a brief review of financing of postsecondary education in Canada, it focuses on the last ten years of Alberta practice in financial planning. The treatment is rather extensive and meticulous because it is evident that practical proposals will have to mesh well with existing policy and practice, and Alberta tradition. Most of the information in Chapter II was collected from primary sources and was articulated with considerable care to ensure that the lessons of the past would be learned and that a sufficiently detailed and consistent record be available for retrospective testing of proposals.

The initial sections of Chapter III begin evolution of the framework and the technical language which allowed project research to progress. Within this conception, financial planning is portrayed as a perspective and an element of the more comprehensive planning process which focuses on determining how goals and objectives may relate to resources and on identifying decisions which affect program costs and grants. One of the ideals of planning is an explicit linkage among goals, objectives, programs, outcomes and financial implications. Technical and human factors prevent many of these linkages from being clearly established, yet to be practical and credible, financial planning must be directed by official institutional and system goals, objectives and related program plans. Thus, the third Chapter turns from these somewhat theoretical and fundamental concerns to their reflection in planning in Alberta advanced education. The nature and content of official goals, objectives, plans, planning processes and policies in Alberta are examined for the purpose of determining how they might guide financial planning and how they might be accommodated by various financing techniques. The Chapter concludes with an extensive comparative analysis of planning and financing in Alberta and California. The State of California has a long and fairly well-documented history of comprehensive planning and hence provides a useful template against which Alberta practice and progress can be discussed in practical terms.

Chapter IV, "Technical Issues and Directions" has as its primary purpose to outline the remaining elements of the framework for analysis and the technical language of enquiry which were developed during the project and which proved so essential to a rational context for discussion, to narrowing of alternative financial plans, and to the presentation of proposals. The fourth Chapter presents a number of taxonomies, including classifications for programs, information systems, financing techniques and allocation formulas. These together with agreed concepts and perceptions on topics such as costs, outcomes, quality, projections and bargaining, help provide the structure for analysis and the background for discussion of alternatives. The Chapter ends with an explanation of why various alternative financing techniques have been given more or less emphasis in project work.

Chapter V provides an extensive analysis of specific alternatives. Certain formula-based financial plans used in other jurisdictions are described and illustrated through the test application of the Alberta data base. The results of these initial analyses lead to observations about both the financing technique and the Alberta data base. In turn, these observations suggest alternative synthesis of formulas which are evaluated from the perspective of the potential Alberta applications. Fortunately, on the basis of the theoretical framework, an analytical, rather than a purely descriptive or anecdotal approach to the examination of the jurisdictions is possible. A limited number of carefully selected jurisdictions are studied and most are tested against the Alberta data base. We tested, not to find out what they do and how it works there, but rather, to find out if what they do gives any insight into what might be valuable to financial planning in Alberta. On the basis of tests and observations made on surveyed financing techniques, alternatives in three categories are developed and tested with the Alberta data base. Evaluation of the surveyed and deduced examples provides important bases for the Financial Plan proposals made in the sixth Chapter.

Chapter VI, "Conclusions and Recommendations" presents four topics. The first is the Financial Plan proposal, the second provides an elaboration and illustration of the proposals and the third goes on to discuss and evaluate the proposals against the numerous issues, concerns, guidelines and criteria. The Chapter ends with a discussion on the continuing requirements of financial planning. This discussion is an elaboration of the "hourglass" methodology, which has been so central to all project planning and research from the beginning.

The remainder of the report is a compilation of appendices which provide extensive information related to the project and financial planning in

Alberta. It includes comparative descriptions of jurisdictions in Canada, Great Britian, Australia and California, detailed historical information in respect of financial planning in Alberta, discussion on faculty collective bargaining and student aid programs across Canada and elsewhere and other appendices supplying additional technical information.

As far as practical, this report is written to be self-contained for the reader not interested in pursuing research details. Materials appearing in the earlier planning papers, and essential to the purpose and readability of the final report have been reproduced in one form or another. However, none of the extensive data base in *Planning Paper Two* is given in this report, virtually none of the data analysis of *Planning Paper Three* appears in this final document, and of course, papers in the *Supplementary Reference Documents File* are not included here. Thus, since the portion of duplicated ideas or materials is so small, the earlier planning papers are considered companion documents to this volume.

## II. RECENT EXPERIENCE IN FINANCIAL PLANNING

In this Chapter we review the most recent experience in financial planning for Alberta universities and public colleges. The experience of the last ten years is particularly important to an understanding of the present circumstances and hence to a rational approach to the study and evaluation of the alternatives which must be considered in the formulation of a financial plan. Alberta financial planning is in the Canadian historical and political context, so we begin with a brief review of financing postsecondary education in Canada.

### A. Financing Postsecondary Education in Canada

Financial planning in any province is only tenuously isolated from the evolving pattern of funding of postsecondary education by the federal government. While we will not present a historical analysis, it is nonetheless appropriate to recognize and acknowledge that proposals for financial planning are made in the context of a surprisingly longstanding and comparatively rapidly changing aspect of Canadian life: Postsecondary education. Formal higher education in Canada can perhaps be traced back to the establishment of Collège de Québec, founded in 1635 (a year before Harvard). By the time of Confederation in 1867, some institutions were acknowledged centres of learning. However, higher education itself was divided and distressed by religious rivalries and relentless competition among institutions for public financial support.

The first direct involvement of the federal government in higher education was in 1874 when the Royal Military College was founded. A few years later, in 1882, the Royal Society of Canada received a federal start-up grant.

In 1885, the federal government granted 150,000 acres to the University of Manitoba. Although the sale of these crown lands provided university income, it seems that the grant was part of the terms of entry of Manitoba into Confederation and cannot be taken as a precedent for financial support of higher education by Canada.

Even though some funds were channeled to postsecondary education through provisions of the Agricultural Aid Act (1912) and the Agricultural Construction Act (1913-23), it is the Technical Education Act (1919) which is really the starting point for current federal programs. The Technical Education Act provided for higher education by helping the training of teachers in vocational subjects. Under the Youth Training Act (1939), the Dominion-Provincial Student Aid Program, which provided loans and/or grants to postsecondary students, was introduced and became the precedent for federal aid to university students. The next steps are described by Stager:

> The several federal-provincial arrangements on vocational training were brought under the Vocational Training Coordination Act (1942). It was this Act which provided the rationale, legislation and administration for the introduction of direct federal assistance for the further education of discharged veterans of World War II. By 1945, this program had been given separate legislation in the form of the Veterans Rehabilitation Act. Initially, provision was made only for payment of veteran students' tuition fees and a maintenance allowance, but a direct grant of $150 per veteran to the universities was soon added to help the universities cope with the rapid increase in enrollments.[1]

The assistance to veterans helped demonstrate the value of such programs and was a factor in the evolution of student aid in general and the eventual establishment in 1964 of the Canada Student Loans Plan. Although there had been suggestions to the Rowell-Sirois Commission for direct federal assistance to the universities in 1939, it was the 1945-50 grants to veterans that established the pattern of the per capita grants for universities. Initially, under the Appropriation Act and later under the Federal-Provincial Tax Sharing Arrangements Act, these federal capitation grants became a substantial part of the universities' operating income. As discussed in the Rowell-Sirois Report (1940)[1] and recommended by the Massey Commission Report (1951)[2], the government, perhaps in part for fear of trespassing on provincial jurisdictions, ended the $150 for every student supported by the Department of Veterans' Affairs and began a per capita grant paid directly to the universities. The grants ($0.50 per capita in 1951) were paid at the rate of $5.00 per capita in 1966. After 1956, grants were distributed among the universities in a province on a per student basis by the Canadian Universities Foundation and its successor, the Association of Universities and Colleges of Canada.[3] Quebec opted out of this program in 1960, so funds were transferred to Quebec in the form of an increased tax abatement and an adjustment payment to raise the grant to the level of the per capita grant in the other provinces.

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[1] David A. A. Stager, Financing Postsecondary Education in Canada: Study No. 1 (Toronto: The Council of Ministers of Education of Canada, 1971), p. 228.

The basic grant in each province in 1966-67 was approximately $4.35 per capita provincial population. A supplementary grant of another $400 was added for each non-resident full-time student. The basic per capita grant was distributed, using a formula which weighted enrolment as follows:

---

[1] Royal Commission on Dominion-Provincial Relations (The Rowell-Sirois Commission), Report (Ottawa: King's Printer, 1940).

[2] Royal Commission of National Development in the Arts, Letters and Sciences (The Massey Commission), Report (Ottawa: King's Printer, 1951).

[3] John F. Graham and John R. Cameron, Financing Postsecondary Education in Canada: Study No. 3 (Toronto: The Council of Ministers of Education of Canada, 1971), p. 13.

Full-time undergraduate, first two years - 1
Full-time undergraduate, balance - 2
Full-time graduate, doctoral beyond first year - 5
Full-time graduate, balance - 3
Part-time undergraduate - ½
Part-time graduate - 1

These weights were suggested by the Bladen Commission.[1] There was little time to assess the value or effectiveness of the formula, because the Federal-Provincial Arrangements Act (1967) was passed by the House of Commons on March 10, 1967.

Under the provisions of the new five-year act, the federal government withdrew from the field of direct aid to higher education. The new program consisted essentially of an unconditional transfer of four points of the personal income tax and one percent of taxable corporation income, equalization of these revenue sources up to the national average, and an adjustment payment designed to bring these transfers up to the greater of $15.00 per capita, or 50% of the allowable operating costs of postsecondary education. The following are not included as operating costs under the Act: student financial aid, capital costs, interest, rent, depreciation and expenditures on ancillary enterprises. Provisions of the Act were extended in March 1972, and again in 1973 for a three-year period ending March 1977. A 15% ceiling on the annual increase in spending costs was added to the provisions of the Act when it was first extended. Ontario was the first Province to establish a formula. Both the Bladen Report (1965)[1] and the report of the Duff-Berdahl Commission (1966)[2] recommended the use of a formula. The Ontario operating grants formula was submitted by the Committee on University Affairs shortly after the Federal-Provincial Conference of October 1966, when the postsecondary education transfers were announced. The idea of an Ontario formula had been established before the change in federal policy.[3] The province was about to ask the federal government to allow it to distribute federal funds to Ontario universities.

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[1] Op,cit., Stager, p. 196.

Other provinces followed and made a transition to a formula for distribution of funds to the universities. The brief summary below shows the basic weights and categories of provincial formulas recently used:

| Province: | New Brunswick | Nova Scotia | Ontario | Manitoba | Alberta |
|---|---|---|---|---|---|
| Year of Source: | 1969 | 1968 | 1967 | 1970 | 1967 |
| Basis for Weights: | Institution | Student/ Program/ Category | Student/ Program/ Category | Student/ Program/ Category | Student/ Program/ Category |
| No. of Weight Categories*: | 4 | 4 | 8 | 13 | 7 |
| Range of Weights*: | 1-3 | 1-5 | 1-8 | 1-14 | 1-8 |

*As applied to full-time student. Part-time students are accommodated through partial weights.

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[1] Commission on the Financing of Higher Education in Canada, Financing Higher Education in Canada (Toronto: University of Toronto Press, 1965).

[2] J. Duff and R. O. Berdahl, University Government in Canada (Toronto: University of Toronto Press, 1966).

[3] John R. Cameron, Financial Assistance to Canadian Universities (Halifax: Dalhousie University, 1969), p. 169.

## B. Alberta Practice in Financial Planning

Universities, public colleges, other institutions and non-institutional programs compete for advanced education operating funds. The distribution of student enrolment (full-time) throughout the advanced education system is shown in Table 2.1 which gives a summary overview of the system. Alberta universities and public colleges are autonomous institutions, governed by appointed boards and financed primarily by provincial grants. Operating grants have been distributed to universities largely through a formula approach and to public colleges through an annual budget review and approval mechanism. Provincially administered institutions are part of government and hence are funded directly through internal departmental budgeting procedures, as are non-institutional programs. Table 2.2 summarizes recent provincial operating expenditure by competing sector.

This project is concerned only with the university and public college sectors, and practices in these sectors will be examined in some detail. The annual institutional operating expenses and total provincial operating grants for the universities and public colleges are given in Table 2.3.

### a. University Financing Techniques

Current university financing techniques have evolved from methods and procedures developed and introduced by the Alberta Universities Commission which, from 1967-68 through 1972-73 was responsible for allocation of operating and capital grants to Alberta universities. Prior to 1967-68, university-level programs and services were provided by The University of Alberta and affiliated junior colleges. Based upon estimates of enrolment and service levels and projected cost factors, The University prepared an annual grant

## TABLE 2.1

## FULL-TIME FALL ENROLMENTS IN ALBERTA POSTSECONDARY INSTITUTIONS SELECTED YEARS

| INSTITUTION | 1967 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 |
|---|---|---|---|---|---|---|---|
| **UNIVERSITIES** | | | | | | | |
| The University of Alberta | 13 027 | 18 345 | 18 243 | 17 757 | 18 524 | 19 155 | 19 736 |
| The University of Calgary | 4 980 | 9 237 | 9 173 | 8 780 | 9 278 | 9 578 | 10 950 |
| The University of Lethbridge | 638 | 1 409 | 1 218 | 1 076 | 1 086 | 1 157 | 1 336 |
| TOTAL UNIVERSITIES | 18 645 | 28 991 | 28 634 | 27 613 | 28 888 | 29 890 | 32 022 |
| Percent of 18-24 Population | 11.7 | 14.9 | 14.2 | 13.1 | 13.1 | 13.1 | 13.5 |
| **PUBLIC COLLEGES** | | | | | | | |
| Grande Prairie Regional College | 107 | 242 | 336 | 309 | 340 | 369 | 514 |
| Grant MacEwan Community College | - | - | 410 | 999 | 1 198 | 1 257 | 1 624 |
| Lethbridge Community College | 455 | 843 | 955 | 990 | 944 | 960 | 960 |
| Medicine Hat College | 199 | 410 | 442 | 339 | 371 | 410 | 374 |
| Mount Royal College | 1 555 | 1 728 | 1 892 | 2 305 | 2 467 | 2 405 | 2 759 |
| Red Deer College | 225 | 879 | 779 | 665 | 723 | 930 | 1 002 |
| TOTAL PUBLIC COLLEGES | 2 541 | 4 102 | 4 814 | 5 607 | 6 043 | 6 331 | 7 233 |
| Percent of 18-24 Population | 1.6 | 2.1 | 2.4 | 2.7 | 2.7 | 2.7 | 3.1 |
| **REGIONAL COLLEGES** | | | | | | | |
| Fairview College | 122 | 131 | 83 | 90 | 80 | 106 | 194 |
| Olds College | 271 | 355 | 403 | 462 | 512 | 551 | 505 |
| Vermilion College | 147 | 160 | 165 | 142 | 171 | 184 | 155 |
| TOTAL REGIONAL COLLEGES | 540 | 646 | 651 | 694 | 763 | 841 | 854 |
| Percent of 18-24 Population | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| **TECHNICAL INSTITUTES**[a] | | | | | | | |
| Northern Alberta Institute of Technology | 2 619 | 3 490 | 3 661 | 4 088 | 4 367 | 4 176 | 4 293 |
| Southern Alberta Institute of Technology | 2 154 | 2 664 | 2 970 | 3 409 | 3 827 | 3 876 | 4 113 |
| TOTAL TECHNICAL INSTITUTES | 4 773 | 6 154 | 6 631 | 7 497 | 8 194 | 8 052 | 8 406 |
| Percent of 18-24 Population | 3.0 | 3.2 | 3.4 | 3.6 | 3.7 | 3.5 | 3.5 |
| TOTAL SYSTEM | 26 499 | 39 893 | 40 730 | 41 411 | 43 888 | 45 114 | 48 515 |
| Percent of 18-24 Population | 16.6 | 20.5 | 20.1 | 19.7 | 19.9 | 19.7 | 20.5 |

---

[a] Excludes apprenticeship programs.

NOTE: 18-24 year old population basis for participation rates is meaningful only as a constant for comparison with population.

SOURCE: Financial Planning Services, Forecast of Full-Time Enrolment in Alberta Advanced Education Institutions (Edmonton: Alberta Advanced Education and Manpower, September 1976.)

## TABLE 2.2

## ALBERTA ADVANCED EDUCATION AND MANPOWER
## PROGRAM EXPENDITURES
## 1974-75 TO 1976-77

| PROGRAM/SUBPROGRAM | 1976-77 ESTIMATES ($'000) | PERCENT | 1975-76 FORECAST ($'000) | PERCENT | 1974-75 ACTUAL ($'000) | PERCENT |
|---|---|---|---|---|---|---|
| ASSISTANCE TO HIGHER & FURTHER EDUCATIONAL INSTITUTIONS | | | | | | |
| Universities and the Banff Centre | 176 397 | 56.9 | 166 948 | 55.6 | 126 433 | 54.9 |
| Public Colleges | 25 330 | 8.2 | 31 321 | 10.5 | 25 390 | 11.0 |
| Private Colleges | 1 037 | 0.3 | 934 | 0.3 | 948 | 0.4 |
| Provincially Administered Institutions | 64 961 | 21.0 | 57 444 | 19.2 | 44 429 | 19.3 |
| Program Support | 10 770 | 3.5 | 6 749 | 2.3 | 5 225 | 2.3 |
| TOTAL PROGRAM | 278 495 | 89.9 | 263 396 | 87.9 | 202 425 | 87.9 |
| FINANCIAL ASSISTANCE TO STUDENTS | 17 570 | 5.6 | 14 440 | 4.8 | 8 434 | 3.7 |
| MANPOWER DEVELOPMENT | 8 692 | 2.8 | 16 994 | 5.6 | 16 347 | 7.1 |
| DEPARTMENTAL SUPPORT SERVICES | 5 138 | 1.7 | 4 989 | 1.7 | 3 022 | 1.3 |
| ALBERTA ADVANCED EDUCATION AND MANPOWER TOTAL | 309 895 | 100.0 | 299 819 | 100.0 | 230 228 | 100.0 |

SOURCE: Estimates of Expenditure 1976-77: Programme Estimates Tabled March 19, 1976 (Edmonton: Government of Alberta, n.d.).

request outlining financial needs beyond the expected federal support level. Typically this request was supported by a *pro forma* global budget (income statement). Meetings between university and government officials provided for the exchange of additional information. This process culminated annually with the approval of a block grant to The University from the Province.

### 1. Alberta Universities Commission Period

In 1966 the Alberta Universities Commission was established with the passage of the Universities Act (1966). In addition to establishing the

## TABLE 2.3

## ANNUAL INSTITUTIONAL NET OPERATING EXPENSES AND TOTAL PROVINCIAL OPERATING GRANTS

($'000)

| INSTITUTION | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|---|---|---|---|---|---|---|
| | | | NET OPERATING EXPENDITURES | | | |
| UNIVERSITIES[a] | | | | | | |
| The University of Alberta | 61 556 | 65 898 | 67 730 | 71 050 | 79 367 | 94 388 |
| The University of Calgary | 29 808 | 33 400 | 33 596 | 36 629 | 42 020 | 51 835 |
| The University of Lethbridge | 4 599 | 5 309 | 5 418 | 5 600 | 6 201 | 7 853 |
| Athabasca University | 92 | 164 | 171 | 445 | 890 | 1 118 |
| The Banff Centre[b] | 1 524 | 2 114 | 2 470 | 2 699 | 3 575 | 4 254 |
| PUBLIC COLLEGES[c] | | | | | | |
| Grande Prairie Regional College | 675 | 822 | 969 | 1 174 | 1 568 | 1 991 |
| Grant MacEwan Community College | 232 | 1 346 | 2 425 | 3 298 | 4 375 | 5 652 |
| Lethbridge Community College | 1 682 | 2 368 | 2 434 | 2 656 | 3 221 | 4 031 |
| Medicine Hat College | 759 | 1 293 | 1 318 | 1 539 | 1 777 | 2 136 |
| Mount Royal College | 4 003 | 3 987 | 4 996 | 5 566 | 6 458 | 7 910 |
| Red Deer College | 1 539 | 1 980 | 1 847 | 2 008 | 2 736 | 4 186 |
| | | | OPERATING GRANTS | | | |
| UNIVERSITIES | | | | | | |
| The University of Alberta[d] | 50 136 | 55 518 | 57 178 | 61 535 | 66 696 | 85 084 |
| The University of Calgary | 23 897 | 28 734 | 29 006 | 31 850 | 34 439 | 45 313 |
| The University of Lethbridge | 3 749 | 4 816 | 4 705 | 5 095 | 5 709 | 7 032 |
| Athabasca University | 104 | 250 | 400 | 450 | 777 | 1 400 |
| The Banff Centre | 360 | 150 | 824 | 550 | 1 158 | 1 675 |
| PUBLIC COLLEGES[e] | | | | | | |
| Grande Prairie Regional College | 573 | 670 | 1 104 | 1 216 | 1 460 | 2 047 |
| Grant MacEwan Community College | 306 | 1 101 | 2 183 | 2 886 | 3 512 | 5 007 |
| Lethbridge Community College | 1 359 | 2 013 | 2 157 | 2 074 | 2 112 | 2 850 |
| Medicine Hat College | 612 | 817 | 956 | 1 063 | 1 290 | 1 760 |
| Mount Royal College | 2 571 | 3 156 | 4 198 | 4 982 | 5 402 | 7 274 |
| Red Deer College | 1 248 | 1 458 | 1 545 | 1 739 | 2 206 | 3 347 |

SOURCES: Universities and Colleges Financial Statements; Annual Reports and Administrative records of the Alberta Universities Commission, the Alberta Colleges Commission and Alberta Advanced Education and Manpower.

[a] Universities' fiscal year. (April--March).

[b] Expenditures prior to 1973-74 have been restated to include course fees and accommodation charges.

[c] Public Colleges fiscal year. (July--June).

[d] Includes payments to colleges.

[e] Includes program development and special provincial operating grants. Excludes Canada Manpower, Alberta Vocational, and Priority Employment Training Programs, residence program at Grande Prairie Regional College, and Other (unspecified) grants at Red Deer College.

Commission and assigning to it certain powers and responsibilities with respect to the financing and administration of universities, the Act established The University of Calgary as a separate and autonomous institution and provided for the establishment of additional Provincial universities. Under the provisions of this legislation, The University of Lethbridge was established in 1967. Thus, for 1967-68 and subsequent fiscal years a new dimension (multi-institutional allocation) was added to the process of Alberta university financing. This, coupled with the simultaneous withdrawal of the Government of Canada from direct financing of universities, made it necessary to develop new procedures for the financing of Alberta universities.

Basic to the techniques and methods developed by the Universities Commission was a mechanism embodied in the Universities and Colleges Assistance Act, which, for each of the years 1967-68 through 1970-71, provided for the determination of an annual level of total operating support to the university sector. This mechanism set a per unit level of support (operating grant per full-time student) on the basis of a Commission recommendation for sector support and an estimate of full-time sector enrolment. The Commission's global request was compiled on the basis of operating requests prepared by each university prior to the fiscal year. Institutional grant requests were submitted in formats prescribed by the Commission and these, at least in earlier years, were data intensive. The process by which the Commission compiled these requests and arrived at its recommendation involved considerable review and discussion with institutions, individually and collectively. The review culminated with the forwarding of a Commission recommendation to which the Government responded by setting a dollar level of operating grant per full-time student. Total operating grant support was set on the basis of the total university sector full-time enrolment established by a provincial audit of institutional registration records as at December 1 of the fiscal year. Table 2.4 shows the total provincial grant made available to the Commission for allocation to the universities in the years 1967-68 through 1972-73 and arrays essential determining data. In 1971-72 the use of the full-time student basis embodied in

## TABLE 2.4

## PROVINCIAL OPERATING GRANT PROVIDED TO ALBERTA UNIVERSITIES COMMISSION

($'000)

| YEAR | STATUTORY GRANT LEVEL[a] (Dollars/ Full-Time Student) | FULL-TIME ENROLMENT[b] | REGULAR GRANT[c] | SUPPLEMENTARY/ TRANSITIONAL GRANT | TOTAL GRANT[h] |
|---|---|---|---|---|---|
| 1967-68 | 2 315 | 18 645 | 43 019<br>[43 163] | - | 43 019 |
| 1968-69 | 2 440 | 22 976 | 55 897<br>[56 061] | - | 55 897 |
| 1969-70 | 2 440 | 26 577 | 64 744<br>[64 848] | 1 595[d] | 66 339 |
| 1970-71 | 2 634 | 28 903[e] | 76 162<br>[76 131] | 2 084[f] | 78 246 |
| 1971-72 | N/A | N/A | 89 687[g] | - | 89 468 |
| 1972-73 | N/A | N/A | 89 409[g] | 2 704[f] | 92 113 |

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[a] Grant level provided for under Universities and Colleges Assistance Act.

[b] Full-time students as at December 1 of fiscal year.

[c] Figures in parentheses are calculated from grant level and enrolment data. Actual grants paid differed in each year.

[d] Determined on the basis of $60 per full-time student.

[e] Excludes College St. Jean enrolment at The University of Alberta.

[f] Grants determined independent of enrolment levels.

[g] Government grants based upon Commission recommendations, not directly related to enrolment levels.

[h] Excludes administrative support for Alberta Universities Commission.

SOURCE: Annual reports and administrative records of the Alberta Universities Commission.

the Universities and Colleges Assistance Act was discontinued and the Act rescinded. For the years 1971-72, 1972-73 and 1973-74 the Government grant decision was made on the basis of estimated enrolment and Commission recommendations regarding the total support required. As in the previous years, these recommendations were formulated after review and analysis of institutional grant requests.

Once the total level of support to universities was determined by Government, the Commission's approach to operating grant distribution involved a formula allocation of general operating funds and allocation of non-formula support to programs which, due to their nature, could not be fully accounted for through formula grant determinations. The formula component of allocations to each university was determined on the basis of (1) student numbers expressed as enrolment units, and (2) dollar grant values per enrolment units. This approach was an adaptation of the Ontario formula used in determining and allocating operating grants to universities. The Ontario formula involves the recognition of varying mixes of students in various types and levels of programs from one institution to another through the application of a system of weights for full and part-time student enrolments. The weights employed in the Alberta universities formula in 1972-73 are given in Appendix M. The non-formula component of the institutional grant recognized the start-up or front end costs associated with new programming efforts and other special and extraordinary areas of requirement which could not be provided for through the volume-related or formula component. To describe fully the Alberta universities formula allocation approach and its evolution, it is necessary to describe its application over the period and to trace the changes in its components and their application.

The general model used for the distribution of the total grant among the universities in 1967-68 and for subsequent years may be described as follows:

$$G_1 = FC_1 + \frac{U_1}{U_1 + U_2 + \ldots + U_n} \cdot [G - (FC_1 + FC_2 + \ldots + FC_n)]$$

$$G_2 = FC_2 + \frac{U_2}{U_1 + U_2 + \ldots + U_n} \cdot [G - (FC_1 + FC_2 + \ldots + FC_n)]$$

$$\vdots$$

$$G_n = FC_n + \frac{U_n}{U_1 + U_2 + \ldots + U_n} \cdot [G - (FC_1 + FC_2 + \ldots + FC_n)]$$

Where: $G_1$, $G_2$ ... $G_n$ are the individual Commission allocations to each university and G is the total Government grant.

$FC_1$, $FC_2$ ... $FC_n$ are the first call grants to each of the universities.

$U_1$, $U_2$ ... $U_n$ are the enrolment units generated at each university.

The specific formulation used in each year is described algebraically in Appendix G. Resulting grant allocations are summarized in Table 2.5. Enrolment unit data are provided in Table 2.6. The following notes and explanations elaborate the Commission allocation in each year:

1) The 1967-68 grant to The University of Lethbridge provided a per enrolment unit level of support which was 53% greater than that provided to the other universities. Following a policy that The University of Lethbridge

# TABLE 2.5

## UNIVERSITIES COMMISSION OPERATING GRANT ALLOCATIONS

($'000)

| GRANT/INSTITUTION | | 1967-68 | 1968-69 | 1969-70 | 1970-71 | 1971-72 | 1972-73 |
|---|---|---|---|---|---|---|---|
| **FIRST CALL GRANTS** | | | | | | | |
| The University of Alberta | $FC_A$ | 1 333 | 1 430 | 678 | 740 | - | - |
| The University of Calgary | $FC_C$ | 935 | 1 280 | 1 064 | 1 465 | - | - |
| The University of Lethbridge | $FC_L$ | - | - | 50 | - | - | - |
| **TOTAL FIRST CALL GRANTS** | $FC_T$ | 2 268 | 2 710 | 1 792 | 2 205 | - | - |
| **TRANSITIONAL GRANTS** | | | | | | | |
| The University of Alberta | $TG_A$ | - | - | 1 028 | - | - | - |
| The University of Calgary | $TG_C$ | - | - | 444 | - | - | - |
| The University of Lethbridge | $TG_L$ | - | - | 123 | - | - | - |
| **TOTAL TRANSITIONAL GRANTS** | $TG_T$ | - | - | 1 595 | - | - | - |
| **SUPPLEMENTARY GRANTS** | | | | | | | |
| The University of Alberta | $SG_A$ | - | - | - | 988 | - | 830 |
| The University of Calgary | $SG_C$ | - | - | - | 451 | - | 949 |
| The University of Lethbridge | $SG_L$ | - | - | - | 181 | - | 205 |
| Athabasca University | $SG_{AT}$ | - | - | - | 104 | - | - |
| The Banff Centre | $SG_B$ | - | - | - | 360 | - | 720 |
| **TOTAL SUPPLEMENTARY GRANTS** | $SG_T$ | - | - | - | 2 084 | - | 2 704 |
| **SPECIAL GRANTS** | | | | | | | |
| Western Board of Music | WB | - | - | - | 25 | - | - |
| College St. Jean | CSJ | - | - | - | 138 | - | - |
| St. Stephen's/St. Joseph's | SS/SJ | - | - | - | 38 | 16 | 16 |
| **TOTAL SPECIAL GRANTS** | | - | - | - | 201 | 16 | 16 |
| **NON-FORMULA GRANTS** | | | | | | | |
| The University of Alberta | $N_A$ | - | - | - | - | 785 | 825 |
| The University of Calgary | $N_C$ | - | - | - | - | 2 061 | 2 485 |
| The University of Lethbridge | $N_L$ | - | - | - | - | 1 723 | 1 602 |
| Athabasca University | $N_{AT}$ | - | - | - | - | 250 | 400 |
| The Banff Centre | $N_B$ | - | - | - | - | 150 | 104 |
| **TOTAL NON-FORMULA GRANTS** | $N_T$ | - | - | - | - | 4 969 | 5 416 |
| **FORMULA GRANTS** | | | | | | | |
| The University of Alberta | | 29 048 | 35 908 | 41 827 | 48 207 | 54 717 | 55 507 |
| The University of Calgary | | 10 269 | 14 605 | 18 090 | 21 981 | 26 673 | 25 572 |
| The University of Lethbridge | | 1 434 | 2 674 | 3 035 | 3 568 | 3 093 | 2 898 |
| **TOTAL FORMULA GRANTS** | | 40 751 | 53 187 | 62 952 | 73 756 | 84 483 | 83 977 |
| **TOTAL GRANTS** | | | | | | | |
| The University of Alberta | $G_A$ | 30 381 | 37 338 | 43 533 | 50 136 | 55 518 | 57 178 |
| The University of Calgary | $G_C$ | 11 204 | 15 885 | 19 598 | 23 897 | 28 734 | 29 006 |
| The University of Lethbridge | $G_L$ | 1 434 | 2 674 | 3 208 | 3 749 | 4 816 | 4 705 |
| Athabasca University | $G_{AT}$ | - | - | - | 104 | 250 | 400 |
| The Banff Centre | $G_B$ | - | - | - | 360 | 150 | 824 |
| **TOTAL GRANTS** | G | 43 019 | 55 897 | 66 339 | 78 246 | 89 468 | 92 113 |

## TABLE 2.6

## ENROLMENT UNITS AND DOLLAR FORMULA GRANT VALUE
## PER ENROLMENT UNIT
## 1967-68 to 1972-73

| YEAR | BASIS | ENROLMENT UNITS USED FOR ALLOCATION | | | | FORMULA GRANT COMPONENT PER ENROLMENT UNIT (Dollars) |
|---|---|---|---|---|---|---|
| | | UNIVERSITY OF ALBERTA | UNIVERSITY OF CALGARY | UNIVERSITY OF LETHBRIDGE | TOTAL | |
| 1967-68 | Actual 1967 | 28 002 | 9 862 | 960<br>[1.53][a] | 38 824<br>[39 333][b] | 1 050<br>[1 036] |
| 1968-69 | Actual 1968 | 32 329 | 13 107 | 1 614<br>[1.41][a] | 47 050<br>[47 712][b] | 1 130<br>[1 115] |
| 1969-70 | Actual 1969 | 37 020 | 15 824<br>[1.01][a] | 2 030<br>[1.30][a] | 54 874<br>[55 641][b] | 1 147<br>[1 131] |
| 1970-71 | Actual 1970 | 39 928 | 18 133<br>[1.005][a] | 2 285<br>[1.25][a] | 60 346<br>[61 008][b] | 1 222<br>[1 209] |
| 1971-72 | Projected 1971 | 42 500 | 20 700 | 2 400 | 65 600 | 1 288 |
| 1972-73 | Projected 1972<br>(Actual 1971) | 39 849 | 18 351 | 2 079 | 60 279 | 1 393 |

[a] Bonus multiplier applied to enrolment units shown in parentheses in these columns.

[b] Enrolment units including bonus units shown in parentheses in this column.

support level should move, over a reasonable period, to the same level as the other universities, a declining bonus multiplier schedule was announced:

| | |
|---|---|
| 1968-69 | 1.41 |
| 1969-70 | 1.30 |
| 1970-71 | 1.20 |
| 1971-72 | 1.10 |
| 1972-73 | 1.00 |

2) In 1969-70 a bonus multiplier was introduced for The University of Calgary to compensate for the discontinuance of first call administrative establishment grants. A multiplier factor of 1.01 was applied to enrolment units in 1969-70 and 1.005 was used in 1970-71. In subsequent years this feature was not in effect.

3) In determining the resource requirements of the universities in 1970-71, the Commission developed a formula which distinguished between student related and non-student related categories of expenditure. Estimated expenditures in 1970-71 in student-related categories were derived from a base-period expenditure per enrolment unit (the average of 1967-68 and 1968-69) by applying an inflation factor related to estimated increases in salary and non-salary costs, and by taking into account the enrolment unit estimates for 1970-71. Expenditure projections in non-student related areas were estimated by other means. The Commission recommendation for a 1970-71 grant based on an enrolment estimate was revised downward when current year estimates were undershot by the 1969 actual December 1 enrolments. Representations by the Commission argued that downward adjustments of support levels would create considerable difficulties for the universities and the Government provided a "transitional grant" in 1969-70 which amounted to $60 per full-time student. Allocation of this transitional grant was made on the basis of the enrolment unit formula after a special first call treatment for The University of Lethbridge.

4) In determining allocations to the universities in 1970-71 the Commission distinguished between formula and non-formula grant components. The non-formula component was essentially a redesignation of the non-student related component in 1969-70 and the first call components in previous years.

5) Government support for the 1970-71 fiscal year, based upon the enrolment count, December 1, 1970 was considerably below the Estimates approved by the Legislature due to the budgetary requirements of the universities and to a significant shortfall in enrolments. To assist the universities to adjust and to provide for the Banff Centre and the newly established Athabasca

University,[1] the Government provided a supplementary grant. The Commission allocated these monies between The University of Alberta and The University of Calgary after fixed "off-the-top" grants were provided to The University of Lethbridge, Athabasca University and the Banff Centre.

6) The 1970-71 bonus multiplier applied to The University of Lethbridge enrolment units was 1.25 and not the 1.20 established in the original schedule.

7) In 1970-71 special purpose grants were provided through The University of Alberta to the Western Board of Music and to St. Stephen's and St. Joseph's Colleges. The grant to St. Stephen's continued in 1971-72 and 1972-73. Also, in 1970-71 a special adjustment grant was provided to The University of Alberta to support a partial year of operation of the French language College St. Jean. In subsequent years College St. Jean enrolments were included in the formula grant determination and allocation.

8) Upon recommendation of the Commission and with the full support of the universities, the practice of providing Government operating grants on the basis of a sum per actual full-time student enrolled at December 1, was changed for 1971-72 and subsequent years. Basing the operating grant of actual enrolments as at December 1, eight months into the fiscal year, did not facilitate effective planning. The actual operating grant could be significantly above or below the forecasts used for budget setting and budget control, leaving little or no opportunity for adjustment. Beginning in 1971-72, operating grants to the Universities Commission were based upon estimated rather than

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[1] Athabasca University was established by Order-in-Council in 1970 as the Province's fourth university. Its status was changed in 1971 to that of an experimental project with permanent university status being re-established in 1975. See AAEM "Athabasca University: A Proposed Role and Mandate", June 1975; See Financial Plan Project Supplementary Reference Documents File, Section 20.

actual enrolments. The total estimates voted by the Legislature were provided to the Universities Commission and the formula component of university allocations was based upon projected enrolment unit figures.

9) Actual enrolments in 1971-72 were significantly below the levels forecasted, however, with the adjustment to procedures described in item 8) above, an unexpected commission revenue shortfall did not occur. While downward adjustments were not made to 1971-72 institutional grants, 1972-73 allocations were based upon constant 1971-72 to 1972-73 enrolment assumptions.

10) In 1971-72 the practice of applying a bonus multiplier to The University of Lethbridge enrolments was discontinued and a non-formula emergence grant was instituted.

11) Actual student enrolments in 1972-73 were below those in 1971-72. Revenue shortfalls were not encountered, and the Government provided a one-year supplementary grant to assist the universities to make an orderly transition to the anticipated lower levels of expenditure necessitated by declining enrolments and projections.

12) During 1972-73 special operating grants were made available to The University of Calgary to assist with the establishment of the Faculty of Medicine ($300 000) and to the Banff Centre ($720 000). These are included in Table 2.5 under "supplementary grants".

As noted above, specific formulations of the models applied in each of the years are included in Appendix G. Further information regarding first call and non-formula grants can be found in Appendix H.

The Government, at the request of the Universities Commission and the universities, agreed in 1972-73 to work toward the development of multiyear grants approach. At the time of the dissolution of the Commission in May of

1973, the universities and the Department of Advanced Education were working on a three-year operating grants scheme. Also, a working committee of university and Universities Commission representatives was established early in 1972 to review the system of enrolment unit weights used in the allocation of the formula operating grant components. The activities of this Committee and the general consensus reached on a number of points concerning the basic structure of the weighting system are described in Appendix F. The Committee's work was suspended with dissolution of the Commission, pending the outcomes of independent discussions between the Department and the universities regarding the development of a multiyear operating grants scheme and a renewal of mandate from the Department.

### 2. The Three-Year Grants Scheme

In August of 1973, the Minister of Advanced Education announced government approval of a *three-year operating grants scheme* for the period 1973-74 to 1975-76. This scheme incorporated many features of the methods and procedures used previously, including the provision of global or block operating grants to each university, thus leaving the determination of campus funding priorities and internal allocations to boards of governors. While the primary purpose of the scheme was to furnish an effective means for determining and allocating operating grants, it was intended that the plan provide institutions with longer term certainty regarding levels of financing and hence facilitate effective planning during a period in which enrolments were expected to stabilize or perhaps even decline. Also, it was expected that the implementation of a longer term scheme would provide an opportunity for reassessment of criteria and methods applied to determining and allocating universities operating grants. The three-year operating grants scheme, as it was originally announced, is described in Appendix I.

The characteristics of the three-year scheme and its actual implementation may be summarized as follows:

1) The scheme provided for the determination and allocation of formula and non-formula grants. Definitions of these types of operating grant components remained consistent with Universities Commission practice. Both formula and non-formula grant components were provided to The University of Alberta, The University of Calgary and The University of Lethbridge. Athabasca University and the Banff Centre received non-formula grants only.

2) Formula grants were based upon a predetermined dollar value of an enrolment unit and estimates of annual institutional enrolment units generated for each year of the scheme. As originally announced, given the experience of enrolment stabilization in 1971-72 and 1972-73, enrolment units for 1973-74, 1974-75 and 1975-76 were based upon 1973-74 estimates of enrolment (no growth assumption). In recognition of cost increases, formula grant units were to increase 6% in 1974-75 and an additional 5% in 1975-76 from a 1973-74 base of $1 572 per enrolment unit. As data in Table 2.7 indicate, both the enrolment unit estimates and the dollar value of the enrolment unit were revised for 1975-76. The actual increase in dollar value of the enrolment unit was 17.5% resulting in an increase of the total formula grant over the previous year of 30.1%.

3) To ensure a measure of fiscal certainty to the institutions and government, grants were subject to review and possible adjustment if actual enrolments differed from estimates by more than ± 7.5% for The University of Alberta and ± 5.0% for The University of Calgary. At The University of Calgary in 1975-76, the variance exceeded this range and after review, an upward adjustment of $600 000 was made to the operating grant.

## TABLE 2.7

## ENROLMENT UNITS AND DOLLAR FORMULA GRANT VALUE PER ENROLMENT UNIT 1973-74 to 1975-76

| YEAR | BASIS | ENROLMENT UNITS USED IN THREE-YEAR GRANTS SCHEME: UNIVERSITY OF ALBERTA | UNIVERSITY OF CALGARY | UNIVERSITY OF LETHBRIDGE | TOTAL | FORMULA GRANT COMPONENT PER ENROLMENT UNIT (Dollars) |
|---|---|---|---|---|---|---|
| 1973-74 | Projected 1973 | 38 600 | 18 300 | 1 950 | 58 850 | 1 572 |
| 1974-75 | Projected 1974 (no growth) | 38 600 | 18 300 | 1 950 | 58 850 | 1 666 |
| 1975-76 | Projected 1975 | 42 500 | 20 700 | 1 950 | 65 150 | 1 958 |

4) Student tuition fee levels remained unchanged during the three-year period. A subsidy was provided to compensate the institutions for inflationary erosion of revenue for 1974-75 only.

5) In the 1974-75 fiscal year, the method of payment of operating grants was changed from a quarterly advance schedule to a schedule of equal monthly payments over twelve months. Compensating adjustments for loss of interest revenue were provided for 1974-75 only.

6) Institutions were expected to implement balanced annual budgets based upon current revenues and expenditures. This was not possible for each year of the scheme.

7) Major changes in programs and services provided by institutions were considered in accordance with policy guidelines and procedures for program coordination developed and implemented in 1973-74.[1] Grants for approved new

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[1] Alberta Advanced Education, Program Coordination, Policy, Guidelines, Procedures (Edmonton: March 1974).

## TABLE 2.8

## ALBERTA UNIVERSITIES OPERATING GRANT ALLOCATIONS UNDER THREE-YEAR OPERATING GRANTS SCHEME

($'000)

| GRANT/INSTITUTION | 1973-74 | 1974-75 | 1975-76 |
|---|---|---|---|
| **FORMULA GRANTS** | | | |
| The University of Alberta | 60 670 | 64 307 | 83 215 |
| The University of Calgary | 28 760 | 30 488 | 40 530 |
| The University of Lethbridge | 3 065 | 3 249 | 3 818 |
| TOTAL FORMULA GRANTS | 92 495 | 98 044 | 127 563 |
| **NON-FORMULA GRANTS** | | | |
| The University of Alberta | 865 | 917 | 1 086 |
| The University of Calgary | 3 090 | 3 275 | 3 482 |
| The University of Lethbridge | 2 030 | 2 159 | 3 022 |
| Athabasca University | 450 | 770 | 1 300 |
| The Banff Centre | 550 | 1 150 | 1 565 |
| TOTAL NON-FORMULA GRANTS | 6 985 | 8 271 | 10 435 |
| TUITION COMPENSATION GRANTS | | | |
| The University of Alberta | - | 543 | - |
| The University of Calgary | - | 258 | - |
| The University of Lethbridge | - | 27 | - |
| TOTAL TUITION COMPENSATION GRANTS | - | 828 | - |
| INTEREST COMPENSATION GRANTS | | | |
| The University of Alberta | - | 616 | - |
| The University of Calgary | - | 319 | - |
| The University of Lethbridge | - | 50 | - |
| Athabasca University | - | 7 | - |
| The Banff Centre | - | 8 | - |
| TOTAL INTEREST COMPENSATION GRANTS | - | 1 000 | - |
| PROGRAM DEVELOPMENT GRANTS | | | |
| The University of Alberta | - | 313 | 783 |
| The University of Calgary | - | 99 | 510 |
| The University of Lethbridge | - | 224 | 192 |
| TOTAL PROGRAM DEVELOPMENT GRANTS | - | 636 | 1 485 |
| SUPPLEMENTARY GRANTS | | | |
| The University of Calgary | - | - | 791[a] |
| Athabasca University | - | - | 100 |
| The Banff Centre | - | - | 110 |
| TOTAL SUPPLEMENTARY GRANTS | - | - | 1 001 |
| TOTAL GRANTS | | | |
| The University of Alberta[b] | 61 535 | 66 696 | 85 084 |
| The University of Calgary | 31 850 | 34 439 | 45 313 |
| The University of Lethbridge | 5 095 | 5 709 | 7 032 |
| Athabasca University | 450 | 777 | 1 400 |
| The Banff Centre | 550 | 1 158 | 1 675 |
| TOTAL GRANTS | 99 480 | 108 779 | 140 504 |

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[a] Includes matching grant for law library.

[b] Includes payments to colleges.

programs (program development grants) are provided in accordance with this policy.

Operating grants provided to the universities and the Banff Centre are summarized in Table 2.8. Further information regarding non-formula and program development grants may be found in Appendix H and Appendix J, Table 1. The AAEM approach to financing of universities for the 1973-74 to 1975-76 period retained most of the characteristics of the earlier Universities Commission procedures. The calculation of enrolment units was retained as a primary feature, however, as an examination of the equations of Appendix G indicates, the AAEM methodology reflected a movement toward the employment of a determination formula, as opposed to an allocation procedure, using enrolment units to reflect relative cost, and thus revenue requirement, differences.

### b. Public College Financing Techniques

The approach to public college operating financing currently used by AAEM is an incremental budget review and approval mechanism evolved by the Alberta Colleges Commission. Prior to the enactment of the Colleges Act which established the Commission as a coordinating agency in 1969, public college financing was somewhat similar to that of local school authorities. Revenues accrued to public colleges from three primary sources: Municipal taxation (through requisitions to local school boards), tuition and Provincial grants. With the passage of the Colleges Act came a revision of funding procedures which eliminated access to the municipal taxation source.

## 1. Alberta Colleges Commission Period

Alberta Colleges Commission Annual Reports from 1969-70 to 1972-73 refer to a number of revisions that were made to college operating finance procedures. The first change made was a revision of the fiscal year of the colleges. An annual fiscal period, July 1 to June 30 was selected as the most desirable, and during a thirty-month period, three transitional fiscal periods were established to allow operating expenses to stabilize by June 30, 1971. During each, certain phased changes were made in operating financing methods and procedures.

Financing methods prior to the establishment of the Commission tended to treat types of programs independently with certain programs being eligible for one level and source of operating grant and other program types being eligible for different levels and/or sources. University transfer programs were generally the most generously supported. Upon review, it was concluded that there was too great a difference between grants allocated on the basis of various types of programs and categories of students. Consequently, grants to support students in upgrading or preparatory programs and vocational or career programs were substantially increased to dollar values comparable to grants for students in university transfer programs. The Commission then considered a procedure for approving individual budgets which differentiated between fixed and variable costs. For the 1970-71 budget year, the Commission approved a system of payments for grants to colleges based conceptually on the following formula:

$$G = F + V\ (A/E)$$

in which: G = Grants to colleges
F = Fixed costs approved
V = Variable costs approved
A = Actual enrolment
E = Estimated enrolment

The variable portion was to be based on the estimated number of students anticipated in a budget year. While the formula was not employed exclusively or specifically, the model was important both conceptually and analytically in the budget review and approval process which evolved. The procedures used throughout the period for which the Colleges Commission was responsible retained the consideration of anticipated enrolments and guaranteed levels of funding, subject to review and possible adjustment where actual enrolment has varied from that anticipated by more than 10%.

Because existing colleges had been operating relatively independently at the time of the Commission's creation, one of the major objectives underlying financing techniques was to overcome significant differences in comparative financial positions. This required development of financing methods and procedures providing flexibility in treatment of one college relative to another. Also, the approach had to lend itself to the financing of newly established institutions and rapid program and enrolment expansion. Thus, budget review and approval emerged as a main component of financial planning. This incremental approach placed less emphasis on absolute levels of enrolment, because increases in institutional operating requirements were more dependent on corresponding changes in enrolment levels. Although the government determined its grant on the basis of an estimate of the number of students anticipated in the public colleges, the Alberta Colleges Commission received a global sum which the Commission subsequently allocated to individual colleges.

### 2. The Period 1973-74 to 1975-76

The Commission's approach to financial planning has been essentially maintained by AAEM for the 1973-74 to 1975-76 period. Public colleges submitted operating budgets in a standard format (see Appendix K), including a

# TABLE 2.9

## OPERATING GRANTS – ALBERTA PUBLIC COLLEGES 1969-1975

($'000)

| INSTITUTION/GRANT | 1969[a] | 1970[b] | 1970-71[c] | 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|---|---|---|---|---|---|---|---|---|
| GRANDE PRAIRIE REGIONAL COLLEGE | | | | | | | | |
| Requisitions[d] | 41 | - | - | - | - | - | - | - |
| Regular Operating Grant | 213 | 97 | 542 | 670 | 765 | 853 | 1 100 | 1 486 |
| Program Development Grant | - | - | - | - | - | - | 158 | 303 |
| Special Grants | | | | | | | | |
| Manpower Subsidy | - | - | 31 | - | - | - | - | - |
| Industrial Education | - | - | - | - | 339[e] | 363 | 202 | 258 |
| Residence Program | - | - | - | - | - | - | - | 20 |
| Canada Manpower and Priority Employment Training Program | 61 | 42 | 112 | 131 | 208 | 272 | 641 | 923 |
| TOTAL | 315 | 139 | 685 | 801 | 1 312 | 1 488 | 2 101 | 2 990 |
| GRANT MACEWAN COMMUNITY COLLEGE | | | | | | | | |
| Regular Operating Grant | - | - | 306 | 1 101 | 2 183 | 2 886 | 3 380 | 4 671 |
| Program Development Grant | - | - | - | - | - | - | 132 | 336 |
| TOTAL | - | - | 306 | 1 101 | 2 183 | 2 886 | 3 512 | 5 007 |
| LETHBRIDGE COMMUNITY COLLEGE | | | | | | | | |
| Requisitions | 65 | - | - | - | - | - | - | - |
| Regular Operating Grant | 774 | 420 | 1 305 | 1 680 | 2 157 | 2 074 | 2 000 | 2 850 |
| Special Grants | | | | | | | | |
| Vocational Training | - | - | - | - | - | - | 112[f] | - |
| Other (Unspecified) | - | - | 54 | 333 | - | - | - | - |
| Canada Manpower | 212 | 30 | 190[g] | - | 308 | 394 | 416 | 705 |
| TOTAL | 1 051 | 450 | 1 549 | 2 013 | 2 465 | 2 468 | 2 528 | 3 555 |
| MEDICINE HAT COLLEGE | | | | | | | | |
| Requisitions | 18 | - | - | - | - | - | - | - |
| Regular Operating Grant | 347 | 150 | 564 | 817 | 956 | 967 | 1 290 | 1 680 |
| Special Grants | | | | | | | | |
| Manpower Subsidy | - | 14 | 48 | - | - | - | - | - |
| Industrial Education | - | - | - | - | - | - | - | 80 |
| Other (Unspecified) | - | - | - | - | - | 96 | - | - |
| Canada Manpower and Priority Employment Training Program | 65 | 36 | 122 | 270 | 171[h] | 189 | 209 | 267 |
| TOTAL | 430 | 200 | 734 | 1 087 | 1 127 | 1 252 | 1 499 | 2 027 |
| MOUNT ROYAL COLLEGE | | | | | | | | |
| Regular Operating Grant | 1 956 | 1 303 | 2 571 | 3 156 | 4 198 | 4 982 | 5 390 | 7 200 |
| Program Development | - | - | - | - | - | - | 12 | - |
| Special Grants | | | | | | | | |
| Vocational Training | - | - | - | - | - | - | - | 74 |
| TOTAL | 1 956 | 1 303 | 2 571 | 3 156 | 4 198 | 4 982 | 5 402 | 7 274 |
| RED DEER COLLEGE | | | | | | | | |
| Regular Operating Grant | 622 | 301 | 1 208 | 1 458 | 1 545 | 1 739 | 2 090 | 3 003 |
| Program Development Grant | - | - | - | - | - | - | 116 | 344 |
| Special Grants | | | | | | | | |
| Manpower Subsidy | 13 | - | 40 | - | - | - | - | - |
| Library Books | 42 | 28 | - | - | - | - | - | - |
| Other (Unspecified) | - | - | - | - | - | - | - | 17 |
| Canada Manpower and Priority Employment Training Program | 81 | 55 | 103 | 233 | 244 | 225 | 192 | 428[i] |
| TOTAL | 758 | 384 | 1 351 | 1 691 | 1 789 | 1 964 | 2 398 | 3 792 |
| TOTAL PUBLIC COLLEGES | | | | | | | | |
| Requisitions | 124 | - | - | - | - | - | - | - |
| Regular Operating Grants | 3 912 | 2 271 | 6 496 | 8 882 | 11 804 | 13 501 | 15 250 | 20 890 |
| Program Development Grants | - | - | - | - | - | - | 418 | 983 |
| Special Grants | 55 | 42 | 173 | 333 | 339 | 459 | 314 | 449 |
| Canada Manpower and Priority Employment Training Program | 419 | 163 | 527 | 634 | 931 | 1 080 | 1 458 | 2 323 |
| TOTAL GRANTS | 4 510 | 2 476 | 7 196 | 9 849 | 13 074 | 15 040 | 17 440 | 24 645 |

---

[a] January through December 1969.

[b] Adjustment period January through June 1970.

[c] July 1970 through June 1971.

[d] Requisitions to local school boards and authorities.

[e] Includes fees of programs not funded by the Alberta Colleges Commission.

[f] Alberta Vocational Training Program (AVT) and Priority Employment Training Program (PEP) grants.

[g] Canada Manpower and Federal Government.

[h] Priority Employment Training Program net revenues.

[i] Includes Alberta Vocational Training Program grants.

grant request, for review and approval or amendment by the Minister. The review process included consideration of growth in enrolments, inflation, new program developments and such special conditions as campus development, community services, and special purpose programs for each institution. Once grant allocations were determined, colleges revised and resubmitted budgets as required for Ministerial approval. An enrolment target was established for each college, and a tolerance range of ± 10% was allowed. A review was conducted in any case where actual enrolment fell outside the tolerance range. The result of this review included an adjustment to operating grants, where warranted. An annual advisory letter to public colleges provided financial guidelines and other information relevant to college financing in each budget year (see Appendix L). Public colleges enrolment levels are summarized in *Planning Paper Two* (139) and operating grants since 1969 in Table 2.9. For the 1973-74 to 1975-76 period, changes in the programs and services delivered by the public colleges were subject to the policy, guidelines and procedures implemented by AAEM in 1974 and program development grants are included in Table 2.9 with additional detail provided in Appendix J, Table 2.

### c. Universities and Public Colleges Financing for 1976-77

In September 1975 the Provincial Government announced government-wide spending restraints limiting 1976-77 increases in operating grants to universities, public colleges, local school boards, hospitals, municipalities and other organizations and agencies, to a maximum of 11% over 1975-76 levels of support. As a consequence, the methods and procedures used by AAEM for the 1973-74 to 1975-76 period for universities and public colleges were reviewed and it was determined that many of their features were incompatible with such a restraint objective. In December 1975, the Minister wrote to each university and public college advising that:

> "1. The Department's allocation for operating grants will increase by a maximum of eleven (11) percent and is intended to cover salary increases and settlements, non-manpower cost increases and growth in enrollment.
>
> "2. The Department's allocation for capital grants will be substantially reduced and no new buildings will be approved for construction.
>
> "3. Student tuition fees may be increased."

The subsequent approach to operating grant allocation followed the 11% guideline. Regular (formula and non-formula) operating grants to universities and public colleges operating grants were limited to 11% increases. Program development grants, approved at specific levels prior to the spending restraint announcement, were provided at approved levels, outside the spending guidelines. Operating grants provided in 1976-77 are summarized in Table 2.10. Tuition fee rates, constant since 1969-70, were increased by 25% at universities and public colleges.

The government spending restraint program and the method of allocation used under the program uniformly restricting the levels of operating grants created difficulties for all institutions, but in particular those with rates of enrolment growth higher than the system average. The University of Calgary, having experienced a large unanticipated enrolment increase for which adequate adjustment could not be made in 1975-76 appealed its 1976-77 grant allocation. After review, an adjustment of $2.82 million was made to the 1976-77 formula grant to permit the university to maintain program and service levels and accommodate the 1975-76 enrolment increase.

## TABLE 2.10

## OPERATING GRANTS TO UNIVERSITIES AND PUBLIC COLLEGES[a] 1976-77

($'000)

| UNIVERSITIES | |
|---|---|
| **FORMULA GRANTS** | |
| The University of Alberta | 92 413 |
| The University of Calgary | 48 580 |
| The University of Lethbridge | 4 932 |
| TOTAL FORMULA GRANTS | 145 925 |
| **NON-FORMULA GRANTS** | |
| The University of Alberta | 1 173 |
| The University of Calgary | 3 759 |
| The University of Lethbridge | 2 663 |
| Athabasca University | 1 443 |
| The Banff Centre | 1 859 |
| TOTAL NON-FORMULA GRANTS | 10 897 |
| **PROGRAM DEVELOPMENT GRANTS** | |
| The University of Alberta | 469 |
| The University of Calgary | 482 |
| The University of Lethbridge | 444 |
| TOTAL PROGRAM DEVELOPMENT GRANTS | 1 395 |
| **TOTAL GRANTS** | |
| The University of Alberta | 94 055 |
| The University of Calgary | 52 821 |
| The University of Lethbridge | 8 039 |
| Athabasca University | 1 443 |
| The Banff Centre | 1 859 |
| TOTAL GRANTS | 158 217 |

| PUBLIC COLLEGES | |
|---|---|
| **REGULAR GRANTS** | |
| Grande Prairie Regional College | 1 649 |
| Grant MacEwan Community College | 5 183 |
| Lethbridge Community College | 3 164 |
| Medicine Hat College | 1 865 |
| Mount Royal College | 7 992 |
| Red Deer College | 3 333 |
| TOTAL REGULAR GRANTS | 23 186 |
| **SPECIAL GRANTS** | |
| Grande Prairie Regional College (Residence Complex) | 22 |
| Grant MacEwan Community College (Mill Woods Start-up) | 67 |
| TOTAL SPECIAL GRANTS | 89 |
| **PROGRAM DEVELOPMENT GRANTS** | |
| Grande Prairie Regional College | 259 |
| Grant MacEwan Community College | 184 |
| Lethbridge Community College | 49 |
| Medicine Hat College | 6 |
| Mount Royal College | 117 |
| Red Deer College | 301 |
| TOTAL PROGRAM DEVELOPMENT GRANTS | 916 |
| **TOTAL GRANTS** | |
| Grande Prairie Regional College | 1 930 |
| Grant MacEwan Community College | 5 434 |
| Lethbridge Community College | 3 213 |
| Medicine Hat College | 1 871 |
| Mount Royal College | 8 109 |
| Red Deer College | 3 634 |
| TOTAL GRANTS | 24 191 |

---

[a] Excludes Canada Manpower, Alberta Vocational and Priority Employment Training Programs.

d. Operating Grants - A Historical Perspective

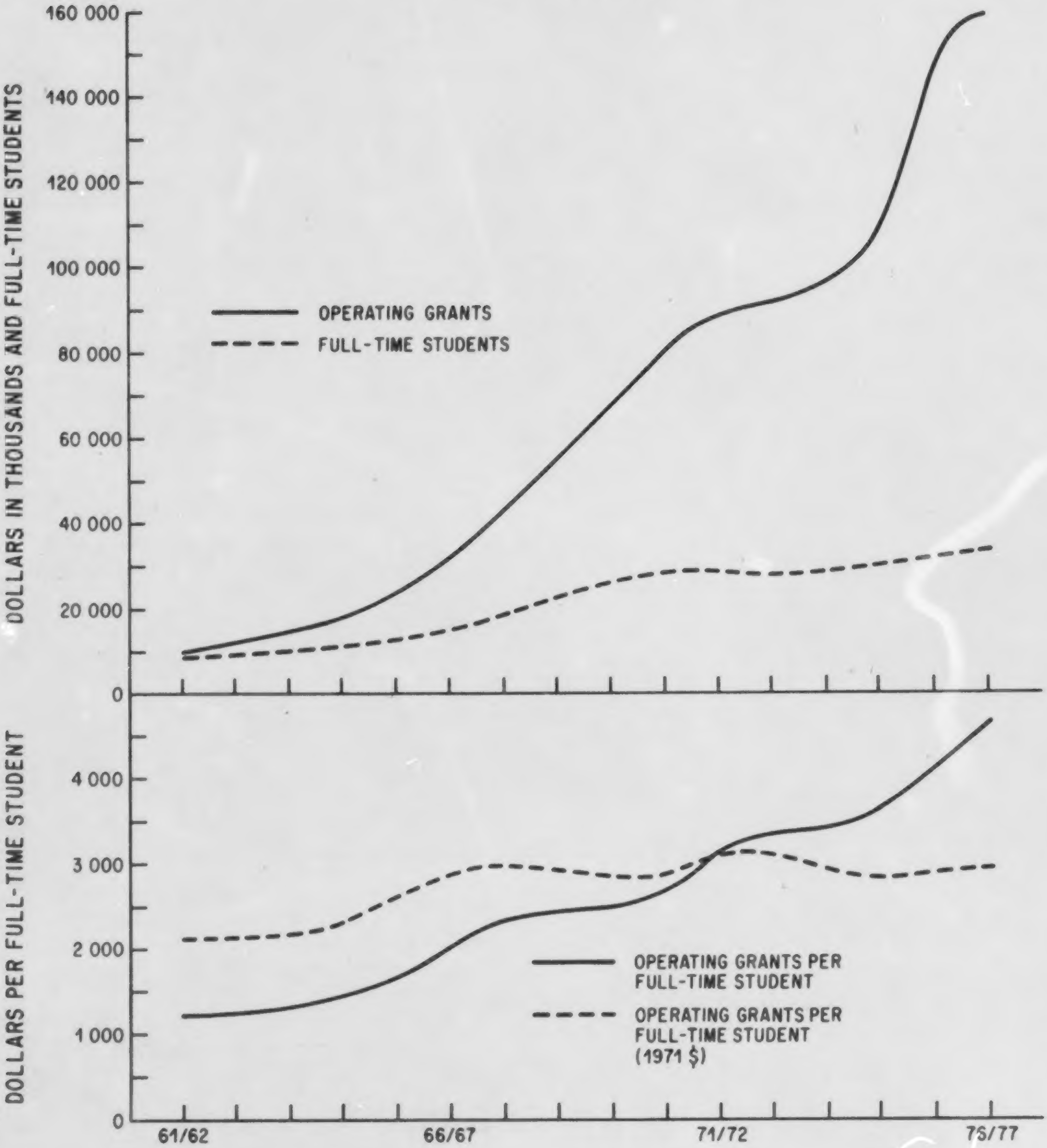
The most significant factor of financial planning in Alberta in the last two decades must be growth, growth in the amount of operating grants and growth in the services provided by an increasing number of institutions to an increasing number of students and other clients. A historical perspective is, of course, not readily obtained from a few curves or tables of numbers, but Figure 2.1 and Figure 2.2 help us to focus on a number of salient points.

Figure 2.1 relates to the university sector and shows the dominance of growth. In more recent years we have tended to think in terms of stabilization of growth, declining growth rates and even declining student numbers. Yet as a sector, the fifteen-year trend of growth has been remarkably faithful to one which increased enrolment by a factor of four in 15 years. Over the same period operating grants increased by a factor of 14 and the significant growth rates were not limited to one "golden" period. The other two curves in Figure 2.1 compare operating grants per full-time students with the same indicator in terms of 1971 dollars. Conversion to 1971 dollars using the gross national expenditure implicit price deflator (government expenditure) shows the growth in a different light. Since 1971-72 the trend in operating grants per full-time student has been down.

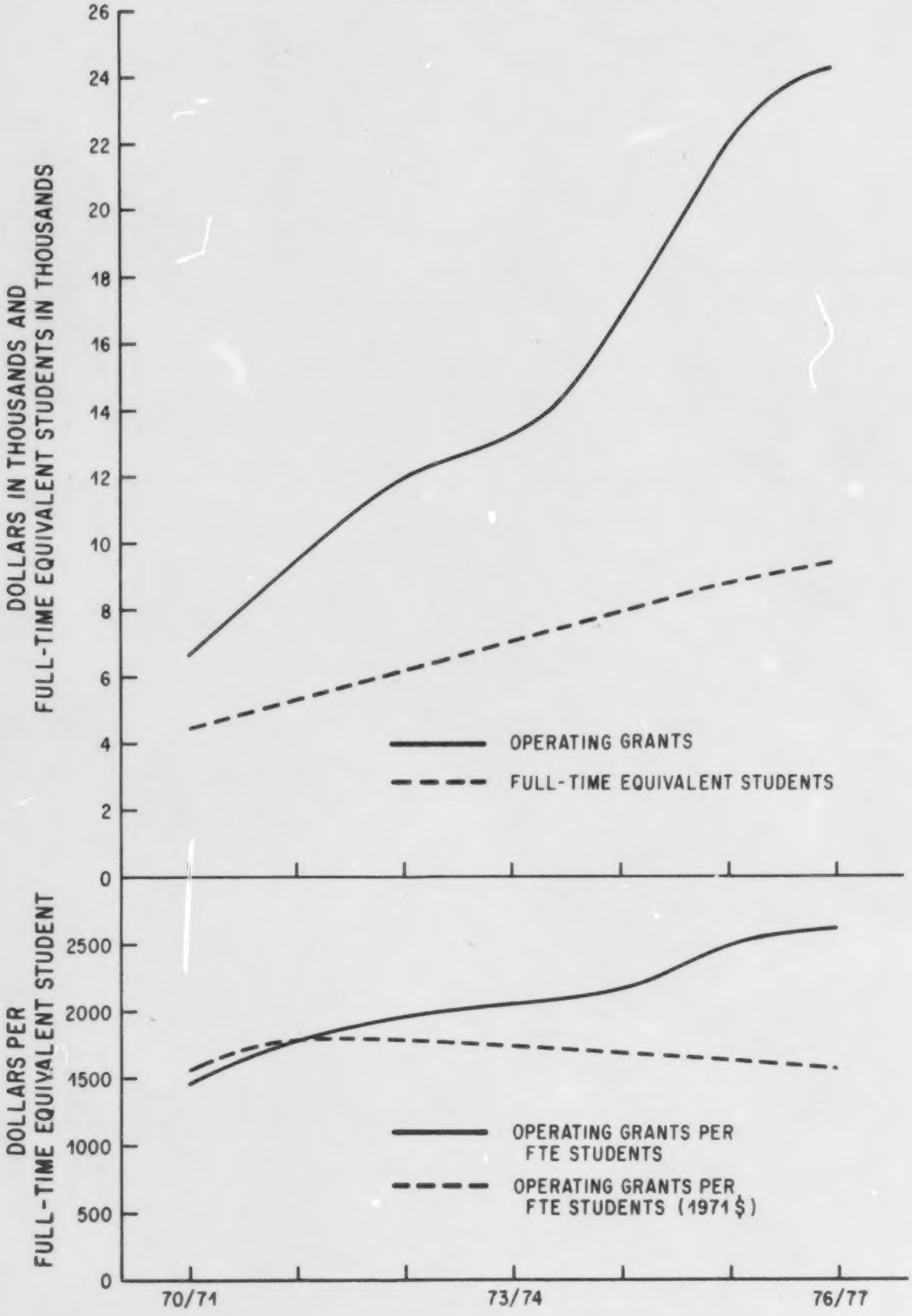
Figure 2.2 necessarily reflects the shorter history of the public college sector. Yet the curve seems to tell the same general story - enrolments doubling in five years, operating grants up nearly four times in the same period and a decline since 1971-72 in the average operating grant per full-time equivalent student after inflationary conditions are taken into account.

At the beginning of this Chapter we noted that knowledge of recent experience in financial planning for Alberta universities and public colleges is important to the kind of analysis and understanding of past and present

## FIGURE 2.1
## TRENDS IN OPERATING GRANTS AND ENROLMENTS AT ALBERTA UNIVERSITIES



## FIGURE 2.2
## TRENDS IN OPERATING GRANTS AND ENROLMENTS AT ALBERTA PUBLIC COLLEGES



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circumstances which permits rational consideration of financial planning alternatives. Our review reveals that financial planning for both sectors has developed in an evolutionary way, adapting to changing problems and circumstances and to the general maturation of the institutions and programs and governance models which have existed. Where major problems have been encountered under any of the approaches as employed, they have usually been associated with the difficulty to respond immediately to rapid changes in patterns of development and shifts and/or changes in demand, in particular, enrolment levels and growth rates. Nevertheless, many of the features of historical techniques and procedures are sound and will be the basis for further evolution of a system in response to new and continuing challenges. From this historical context with its implications for constraints and opportunities, we move in the next Chapter to consider another perspective which allows us to view the allocation problem and financial planning in the context of planning processes in higher education.

## III. PLANS AND PLANNING

### A. Relationship of Planning to Resource Allocation

Our discussion of "a financial plan" or "financial planning" must be carried on with a mutual understanding of how the terms are used. The word "finances" is generally understood to mean money; "plans" and "planning" produce a wide variety of interpretations and impressions. Everyone plans. Families plan when they prepare for vacations, committees plan when they wish to propose programs, managers plan when they want to reorganize, and governments plan when they desire to or are required to introduce policies. Practices of planning, analyzing, policy making, decision making and decision taking cannot be neatly dissected or logically ordered. Analyses can limit plans; plans can indicate decisions to be made; decisions can affect policies. Switch any of these words from subject to object and examples can be found to make the statements accurate.

Financial planning in contemporary views of postsecondary education planning and management has come to be regarded as a financial *perspective* within a more comprehensive planning process; a perspective which focuses on determining how goals and objectives may relate to resources, and on identifying the decisions which affect program costs. In an attempt at definition for the purposes of this report, we attribute to the notion of *comprehensive planning* a formal and systematic procedure whereby determination of future action and outcomes for a system or organization encompasses the relationships among all of the major components and activities of the system as they are commonly understood. Typically in postsecondary education, we view comprehensive planning as requiring the integration of academic, physical, and financial planning. Serious pursuit of any of these three types of planning in the absence of adequate integrating mechanisms tends to add to the list of surprises, frustrations and horror stories in postsecondary education. Thus, while we will eventually discuss considerable detail related to financial planning and associated financing techniques, we do not regard these processes as standing apart from broader planning and decision making.

This Chapter is meant to identify and describe current concepts and realities of postsecondary planning and financing in a manner which eventually moves us towards more detailed examination of specific financial plan alternatives for advanced education in Alberta. In the three main parts of this Chapter we will do the following:

1) Describe, from contemporary viewpoints, the key components of comprehensive postsecondary planning processes, and discuss the components of the process as they form the context within which financial planning should or does occur

2) Examine in the advanced education system those components of comprehensive planning in Alberta which affect and relate to financial planning

3) Review components of a well-documented example of comprehensive system-wide planning in postsecondary education in relation to financial planning in Alberta.

## a. Early Comprehensive Plans

It was only a few decades ago that concepts of long-range comprehensive planning began to extend to social and economic activities in North

America. Until World War II, planning was considered a venture alien to higher education.[1] Prior to that period, plans of grand design were usually associated with physical forms of cities or with crises such as war. War plans were strategies which assumed an end point - victory; plans for cities traditionally assumed a permanence of conditions and often became "carved in stone". For the most part, societies were viewed as natural entities whose characteristics evolved without anyone having planned the change. More recently, societies and their processes have been regarded as being subject to changes which are deliberate and planned - from attacks on specific social problems to master plans for modernizing underdeveloped countries.

The idea of comprehensive long-range planning appears to originate from problems of developmental economics in Russia in the 1920's.[2] Questions regarding the country's growth and development were natural consequences of having most of the investment capital controlled by the State. In the West, capital assets and resources were privately held, and questions of investments as public policy were not encompassed by the theory of market equilibrium. The first examples of input-output tables were developed during this period, and the tracing of the inter-connections of economic sectors was a new idea which provided a basis for comprehensive planning to begin.

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[1] Lyman A. Glenny, "Coordination and Planning Despite Competition and Confusion", New Directions for Institutional Research: Assuring Academic Progress Without Growth, No. 6 (San Francisco: Jossey-Bass Inc., Summer 1975), p. 14.

[2] Alec Nove, An Economic History of the U.S.S.R. (London, England: Allen Lane The Penguin Press, 1969), p. 129.

In 1927, Russia initiated a series of five-year plans for industrial, agricultural, defense and social development throughout the country. The plans had two versions, the initial and the optimal variant. Annual review processes in the first five-year plan resulted in target revisions even beyond the optimal version. Subsequent plans became more modest, and while development was remarkable, the top-down, centralizing and binding characteristics of these plans were rejected as concepts for planning of public affairs in Western countries.

In 1946, after France announced Jean Monnet's first French plan for guiding its economic policy making, the Economist[1] noted the key differences between planning in the Soviet Union and in a democratic state. The Monnet plan did not pretend to set a complete and detailed plan for the whole French economy, but concentrated on six "key resources" which governed the rest of the economy. While the purpose of the two nations' plans were the same - to increase output rapidly by restricting, in the first instance, the level of consumption - the Economist pointed out that there were limits to the amount of planning a democratic government could do. A dictatorship and police state had powers to compel people to do what they would otherwise not choose to do, whereas a democratic government could prohibit people from doing things, but found it much more difficult to compel people to do what it wants. The spectre of a government authority setting goals and predetermining social and economic activity was seen as contrary to a democratic society built on ideals of individual freedom and local autonomy. This view may be just as strong today in North American society, but the concept of a rolling long-range comprehensive plan with planning principles and strategies has not only lost much of its former taint, but has become a common feature in managing public institutions and government departments.

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[1] The Economist, Vol. CLI, No. 5390 (London, England: 14 December 1946).

### b. Planning and Analysis

Inextricably tangled with the notion of planning is that of analysis. During the second great war, "operations research" was developed as a method of solving military problems, with optimization of resource allocation as the prime goal.[1] Systems analysis in engineering firms such as Bell Laboratories was common in the 1920's, and planning efforts in the United States in 1943-45 used systems analysis to support early versions of program budgets.[2] Identification and review of objectives was a critical purpose of systems analysis related to military planning.

> Systems analysis at the national level, therefore, involves a continuous cycle of defining military objectives, designing alternative systems to achieve these objectives, evaluating these alternatives in terms of their effectiveness and cost, questioning the objectives and other assumptions underlying the analysis, opening new alternatives and establishing new military objectives, and so on indefinitely.[3]

### c. Planning and Financing

In the Western private sector, the linking of longer range planning to budgeting was evident in General Motors financial documents of 1924. The documents included a feature of what we now know as Planning, Programming, Budgeting Systems (PPBS), a technique which deals explicitly with uncertainty.[1] In the public sector, formal linkages among techniques of planning, analysis, resource allocation and management developed throughout the 1950's, and terminology such as "program objectives", "program costs", "program budget" and "performance budget" came into use. The most extensive attempt at systematic long-range planning and resource allocation in the public sector was PPBS, launched by the Canadian and United States Governments in the 1960's. Based on the work of Charles Hitch and Roland McKean[2], the United States Defense Department applied PPBS, and in 1965 President Lyndon B. Johnson announced the use of PPBS in all federal departments. In the late 1960's several state governments adapted PPBS and imposed it on all state agencies including institutions of higher education. In Canada, the groundwork for program budgeting was set down by the Royal Commission on Government Organization (The Glassco Commission) established in 1960.[3] In 1963 the Bureau of Government Organization was formally constituted and later proposed the adoption of Commission recommendations on budgetary reform. Further work by the Treasury Board, which later took the Bureau under its wing, led to submissions of program budgets with five-year estimates from five government departments in 1966. In 1968 all federal government departments received a "Planning Programming Budgeting Guide" which described the concepts of program budgeting in the form of a classification of government activities by objectives and programs, and explained the analytical procedures to implement the system. Although there are many versions of PPB systems, the main conceptual components are:

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[1] Charles Kittel, "The Nature and Development of Operations Research", Science, Vol. 105 (Washington: American Association for the Advancement of Science, January-June 1947).

[2] David Novick, ed., Program Budgeting: Program Analysis and the Federal Budget, 2nd ed. (Cambridge, Massachusetts: Harvard University Press, 1965), pp. xxi-xxiii.

[3] Charles J. Hitch, Decision Making for Defense (Berkeley: University of California Press, 1965), p. 52.

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[1] Op.cit., David Novick.

[2] Charles Hitch and Roland McKean, The Economics of Defense in the Nuclear Age (Cambridge, Massachusetts: Harvard University Press, 1960).

[3] H. R. Balls, "Planning, Programming and Budgeting in Canada", Public Administration, Vol. 48 (Autumn 1970), pp. 289-305.

1) Systematic long-range *planning* (5 - 15 years) which clearly specifies objectives and examines the costs and benefits of alternative courses of action which meet the objectives

2) Deciding on specific courses of action, *programming*, (1 - 5 years) in the context of examined alternatives and chosen objectives

3) Translating the decisions into immediate (0 - 1 year) and specific financial plans and policies, *budgeting*.

The analytical basis for deciding on specific courses of action and translating them to budgets is cost-benefit analysis.[1]

The principles and techniques of systems analysis and program budgeting are reflected in contemporary versions of planning and resource allocation methodology and have significant ramifications for educational financial planning. Tools and techniques for systems analysis (cost studies, simulation models, optimizing techniques, data analysis procedures, etc.) have profoundly affected the intensity with which planning can be done. Program budgeting concepts which attempt to tie objectives to activities to dollars have blurred the boundaries among traditional planning entities - financial, academic, physical, personnel, etc.

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[1] George B. Weathersby and Fredrick E. Baldersto n, PPBS in Higher Education Planning and Management, Paper 31, Ford Foundation Program for Research in University Administration (Berkeley, California: University of California, May 1972).

## B. General Planning Processes in Postsecondary Education

Those involved in financial planning in postsecondary education are aware of the increasing complexity of the context within which financial decisions are made - a context which extends well beyond both recent theoretical and applied models for financial planning. *Planning Paper One* (6) referred to financial planning as "a component of the planning/management process, directed toward the selection of courses of action which may ensure that desired educational outcomes can be achieved over a future period of time within agreed policies and constrained resources". While financial planning processes might reasonably be guided by this general definition, practical financial plans will be those which accommodate the difficulties in obtaining clear answers to specific questions such as: How are "courses of action" developed, and who makes the "selections"? Whose "desired educational outcomes"? How are the "outcomes" measured? How long is the "future period"? How are the "policies" agreed or decided upon? What is the extent of "constrained resources"?

The determination of an appropriate and practical financial plan and accompanying financing techniques for AAEM is circumscribed by possibilities and constraints involved in planning processes per se, as well as in the Alberta context of advanced education. The discussion which follows will address issues which typically affect processes for developing and managing a plan.

A comprehensive view of planning involves processes of setting or identifying general goals; defining specific objectives aimed at the goals; developing, continuing or altering programs to meet the objectives; monitoring the results and feeding back information for decisions which might adjust the programs, objectives or goals. The components in a planning process, and the content and operational relevance of a plan, varies according to the intent, commitment and knowledge of those involved in the formulation and implementation of a plan. Just as there are neither fixed nor universally accepted rules for systems analysis or a single system for program budgeting, there is no precise, agreed approach to planning. Nonetheless, the fairly simple *General Planning Process*, illustrated in Figure 3.1, can serve to identify some key components in a planning process and can provide a reference point for discussion of technical and human considerations in formulating plans. Figure 3.1 represents a contemporary planning process at the institutional level, but one can visualize the process applying at the department, faculty or system level.

The starting point for contemporary planning processes relates to the very reasons for developing a plan. On the basis of their study, Cohen and March observed that while executive leadership in higher education acknowledge planning is necessary for orderly direction of educational institutions, there is little evidence of comprehensive plans having been initiated for this purpose.[1] Rather, the impetus for comprehensive planning efforts has been the necessity to respond to problems which have resource implications. The statements of need for planning in postsecondary education have been related to coping with increases or decreases in student numbers; to choosing what an institution should preserve and what it should discard; to responding to public disenchantment and demands for accounta-

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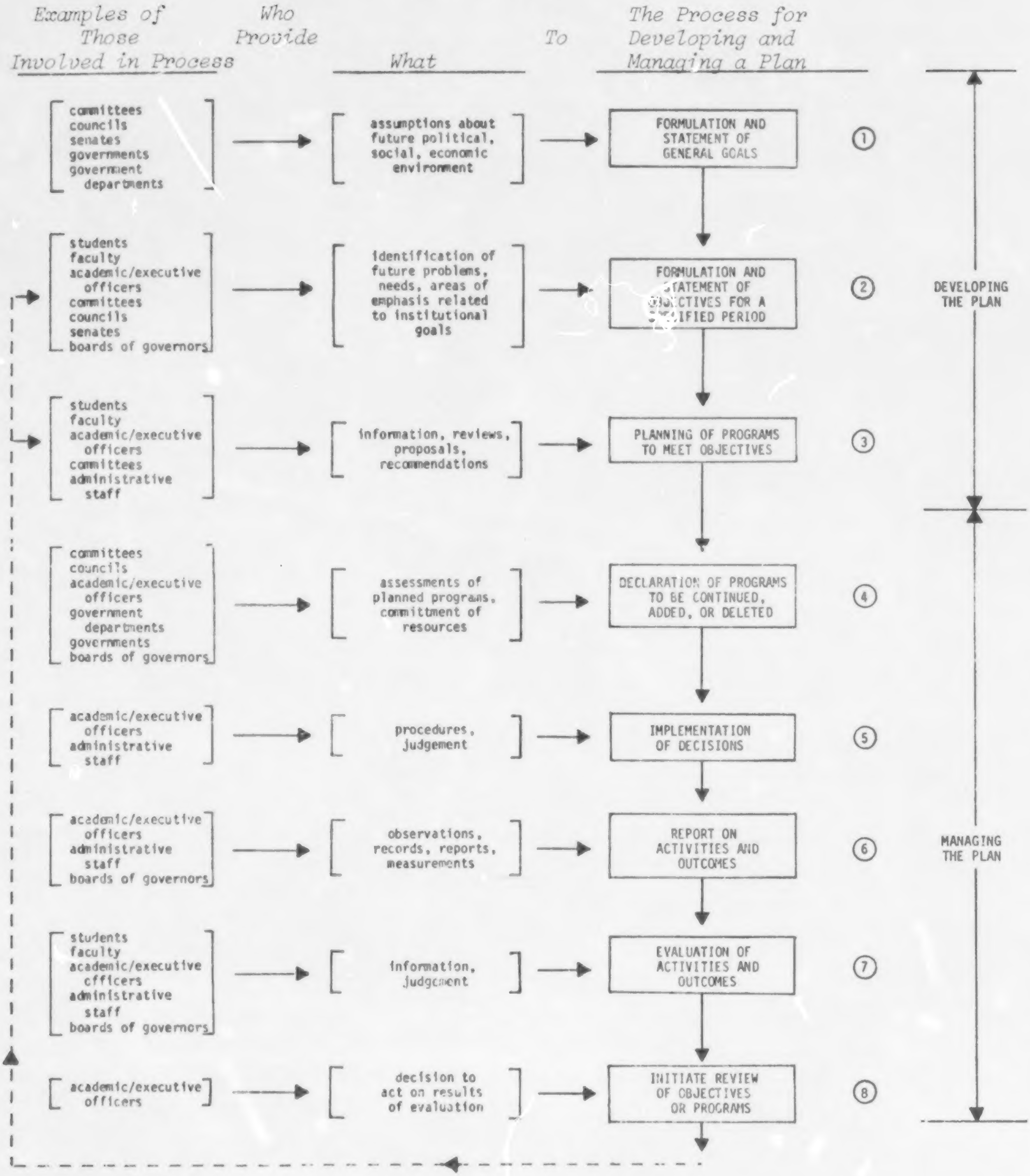
[1] Michael D. Cohen and James G. March, Leadership and Ambiguity: The American College President (New York: McGraw Hill Book Co., 1974).

FIGURE 3.1

CHARACTERISTICS OF A GENERAL PLANNING PROCESS
(INSTITUTIONAL LEVEL)


Examples of Those Involved in Process
Who Provide
What
To
The Process for Developing and Managing a Plan
committees
councils
senates
governments
government departments
assumptions about future political, social, economic environment
FORMULATION AND STATEMENT OF GENERAL GOALS
①
students
faculty
academic/executive officers
committees
councils
senates
boards of governors
identification of future problems, needs, areas of emphasis related to institutional goals
FORMULATION AND STATEMENT OF OBJECTIVES FOR A SPECIFIED PERIOD
②
DEVELOPING THE PLAN
students
faculty
academic/executive officers
committees
administrative staff
information, reviews, proposals, recommendations
PLANNING OF PROGRAMS TO MEET OBJECTIVES
③
committees
councils
academic/executive officers
government departments
governments
boards of governors
assessments of planned programs, committment of resources
DECLARATION OF PROGRAMS TO BE CONTINUED, ADDED, OR DELETED
④
academic/executive officers
administrative staff
procedures, judgement
IMPLEMENTATION OF DECISIONS
⑤
academic/executive officers
administrative staff
boards of governors
observations, records, reports, measurements
REPORT ON ACTIVITIES AND OUTCOMES
⑥
MANAGING THE PLAN
students
faculty
academic/executive officers
administrative staff
boards of governors
information, judgement
EVALUATION OF ACTIVITIES AND OUTCOMES
⑦
academic/executive officers
decision to act on results of evaluation
INITIATE REVIEW OF OBJECTIVES OR PROGRAMS
⑧

bility; and to following a government directive for establishing an institutional plan. Whether plans are meant to serve as guides to a specific future or as strategies for coping with future eventualities and problems, they are founded on statements or understanding of goals and objectives.

### a. Goals

In addressing the raison d'être of educational systems and institutions, terminology such as "goals", "purposes", "objectives", "missions" and "roles" are commonly used, often synonymously. There is a trend in recent educational planning literature to distinguish between "goals" which are viewed as statements of broad, general direction and "objectives" which are statements of specific accomplishments which can be measured or assessed in some way.

#### 1. Definition of Goals

The New York Regents' definition has often been used as a source for distinguishing between goals and objectives, and in this discussion we will assume the same distinctions between the terms:

> The purposes of higher education presented herein express the enduring aspirations of society and provide the departure point for the goals. The goals state desirable conditions that are sought. They are couched in broad, qualitative terms, identifying functional areas of interest. It is recognized that goals may be only partially attainable; that they may exceed our society's ability to reach them; and that, at any given time, they may have to be limited or deferred.
>
> Objectives are specific ends to be achieved in the functional area of the goal which each is designed to support.[1]

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[1] Regents of the University of the State of New York, Education Beyond High School (Albany, New York: The State Education Department, January 1971), p. 2.

## 2. Goals and Public Policy

While the statement of goals may be thought of as essential to the existence and effectiveness of an educational system and its components, the characteristics of goals are such that their relevance to practical financial planning is obscure. In his review of goals for higher education, David Trivett draws upon examples in Canada and the U.S.A. and summarizes some of these goal characteristics.[1] Broad questions related to public interests and relationships between individuals and society are issues of public policy which determine most educational goals. Programs that affect the power, status, or self concept of individuals within the social system, or programs that increase or decrease social and political tensions are matters of public policy. Some outcomes of public policy are unintended or unanticipated, but most educational goals are examples of public policies which have intended outcomes. Because public policies reflect societal values and culture, educational goals cannot be set in absolute terms, in isolation of society.

As there are many "publics" - governments, government departments, several "societies" - there is a multiplicity of educational goals which can generate conflicts of purpose and problems of priorities at different levels of the educational system. This situation often impacts financial planning, as funds which are allocated at one level in support of a particular goal, are reallocated at the next level to support a different goal, or different interpretations of a goal.

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[1] David A. Trivett, Goals for Higher Education: Definitions and Directions, ERIC/Higher Education Research Report No. 6 (Washington, D. C.: The American Association for Higher Education, 1973).

### 3. Operative vs. Official Goals

Given that goals reflect public policy which is subject to change, and recognizing that multiple goals increase the potential for goal conflicts, it should be no surprise that "official" goals that are stated publicly, differ from "operative" goals which are reflected in day-to-day decisions and operating policies. Evidence taken in complex organizations indicates that official goals are purposefully vague, priorities among goals are not declared and methods of achieving goals are not elaborated.[1] In official plans, there are usually enough goals, sufficiently abstract to cover the interests of groups who have a say in approving the plan. Organizational activities however, reflect the "operative" goals and may support, impede or be irrelevant to the achievement of "official" goals. As a starting point for practical financial planning therefore, it may mean that the identification and priority among actual educational goals can only be inferred from actual practice.

A variation of the problem of operative goals is the perception of what goals "are" versus the opinion of what goals "should be". Results of a survey of 68 United States universities indicate, from faculty and administrator responses, considerable differences in the ranking of "is" and "should be" goals.[2] Financial planning over a longer term required recognition and assessment of the extent to which the "should be" goals will affect resource allocation decisions. Where choices exist in the resource allocation process, the goals of those who influence allocation decisions will tend to prevail, thereby making important the answer to the somewhat indelicate question, "will they put the money where their mouths are?"

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[1] Charles Perrow, "Analysis of Goals in Complex Organizations", Readings on Modern Organizations (Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1969).

[2] Edward Gross, "Universities as Organizations: A Study of Goals", American Sociological Review, Vol. 33, No. 4 (Washington, D.C.: The American Sociological Association, August 1968), pp. 518-544.

#### 4. Value of Goals

Discussion on the characteristics and problems of goals could be considerably protracted, but this brief discussion might serve to question the value of goals in financial planning. It would seem that the vague and changing nature of goals, their determination and their impact are so elusive as to be useless for operative and practical determinants of a plan. Hodgkinson summed it up rather well:

> ... goal statements are next to meaningless without specific agreement on how the goals are to be implemented, by whom, what resources are to be used, and how the effort will be evaluated. Note that I didn't say measured. Many things can be evaluated even if we cannot affix a number value to them.[1]

The value of goals in a planning process appears to lie not so much in providing a clear prescription for organizational effort, as in providing general emphasis and broad understanding or, in the current vernacular, "what it's all about". As we move through our general planning process to what it's all about in more specific terms, we examine the notion of objectives.

### b. Objectives

#### 1. Definition of Objectives

We are defining objectives as specific statements of intent supporting one or more goals, and requiring policies, resources, programs and activities in order to be achieved. Included in the commonly understood notion of objectives is that the progress towards them can be measured or evaluated in some way.

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[1] Harold L. Hodgkinson, "Goal Setting and Evaluation", Planning and Management Practices in Higher Education: Promise or Dilemma? Report No. 26 (Denver, Colorado: Education Commission of the States, May 1972), p. 44.

## 2. Consensus on Objectives

It seems obvious that consensus on an objective, at least among those who can directly influence efforts toward the objective, is a necessary condition for its achievement. It is also generally accepted that the objective should be stated unambiguously, with sufficient substance to imply the consequences of its pursuit. Unfortunately, these two conditions are often mutually antagonistic because as objectives become sharpened, the threats to various interest groups increase. Interests of parties who must arrive at consensus on an objective is often achieved through compromise such as by reducing the specificity of the objective or by agreeing not to pursue the objective too vigorously.

In organizations in the public sector, planning and management techniques which depend heavily on the formulation of and agreement on objectives, and measurement of their attainment (such as Management by Objectives and Planning Programming Budgeting Systems) have not achieved the benefits ascribed to them. Difficulties in using these techniques in the Federal Government have been commented on by Douglas Hartle, former Deputy Secretary (Planning) of the Treasury Board.[1]

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[1] D. G. Hartle, "Techniques and Processes of Administration", Canadian Public Administration, Vol. 19, No. 1 (Toronto, Ontario: Institute of Public Administration, March 1976).

on PPB - It was naive to assume that agreement could be reached as to the objective of each program. Most programs have multiple objectives, and some of them cannot be admitted. Different ministers and officials assign quite different weights to these several objectives at any point in time. Then these weights change.

on MBO - Too often, in my experience, MBO costs more in time and energy than it produces: endless meetings, haggling over jurisdictional territory, drafts and redrafts of statements of objectives to ensure that they are sufficiently vague, no real monitoring of performance against the stated objectives - sometimes because this is impossible and sometimes because it is uncomfortable for the senior officer.

In institutions of advanced education the matter of achieving consensus on objectives has become more complex as decision-making environments change. From his perspective as a dean, vice-president, and university planner, W. M. Sibley has described three periods in higher education which are relevant to our discussion of decisions and agreement on objectives.[1] Formulation of objectives in what Sibley has described as the "age of authority" in higher education was a matter for those who were charged with the responsibility for providing leadership and management. Higher education institutions moved from this "age of authority" when relatively few were involved in *making the rules*, to the "age of participation" in the 1960's when groups and individuals representing students, faculty, support staff and alumni were made legitimate contributors to processes that *changed the rules*. More recently, decisions in institutions have moved into the "age of litigation" where the *rights to make the rules* are the issue and conflicts on these matters increasingly involve courts, governments and other bodies outside the institutions.

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[1] W. M. Sibley, "Modes of University Government", Canadian Journal of Higher Education, Vol. 6, No. 1 (Toronto, Ontario: Canadian Society for the Study of Higher Education, 1976), pp. 19-27. Dr. Sibley is associated with the Financial Plan Project.

It would appear that by having left the more compact decision-making environment of the "age of authority", the chances for consensus on what institutions should be doing, and where emphasis should be placed, diminished as the multitude of interests increased. However, institutional and system-wide plans and planning processes, based on statements of objectives, do exist, and accepted planning documents are evidence that some of the political/technical difficulties associated with obtaining consensus on specific objectives can be overcome. Familiar participatory processes seek consensus by using committee structures, liaison bodies, advisory groups and a variety of polling techniques.

### 3. Extent to Which Objectives are Met

More difficult to achieve, particularly in education, is agreement on the extent to which an objective has been met. For example, an objective related to goals of serving the community and providing diverse opportunities for students may call for the establishment of a new school of technology. The achievement of the objective can be easily determined. When the school is built, equipped and staffed, and when students and the public begin to benefit, the objective has been reached. However, if some well intentioned modifiers are added to the stated objective, e.g., "to establish a modern, top quality school of technology" or if there is another objective in the system, e.g., "all programs will seek excellence within the most effective possible uses of resources", the problem of obtaining agreement on when the objective has been reached becomes hopeless or ignored.

In a study conducted at Utah State University[1], the results of a one year Management by Objectives program indicated that over 30 percent of the participants had difficulties in setting goals and measuring tangible aspects of teaching. Other dimensions of the problem of knowing when we have "arrived" at an objective will be addressed when we deal with the matter of reporting on activities and outcomes, within the discussion framework of our general planning process, Figure 3.1.

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[1] Y. K. Shetty and Howard M. Carlisle, "Application of Management by Objectives in a University Setting: An Exploratory Study of Faculty Reactions", Educational Administration Quarterly, Vol. 10, No. 2 (Columbus, Ohio: University Council for Educational Administration, Spring 1974), pp. 65-81.

### 4. Priorities Among Objectives

In concluding these comments on objectives it should be noted that planning processes typically involve the establishment of priorities among objectives. The ordering of priorities in educational institutions is usually based, at least in form if not in substance, on "academic" rather than "financial" considerations, and the "statement of priorities" is a number of items listed in order of importance. In the sphere of policy analysis and evaluation, this type of ordering of priorities has been referred to by Braybrooke and Lindblom as the "naive priorities method".[1] Their discussion on ranking the values of a number of policies is relevant to our notion of establishing priorities among objectives.

> Merely announcing that one is putting "freedom" ahead of "equality" does not explain in what sense it is being "put ahead" or how far. In general, if the list of priorities runs $V_1$, $V_2$, $V_3$, $V_4$, $V_5$, $V_6$, $V_7$, $V_8$, etc. the list itself gives no indication of which policy to choose when the choice lies between policies offering different combinations of benefits. For example, the list does not indicate whether or not a policy offering $V_1$, $V_5$, $V_7$ is preferable to a policy offering $V_2$, $V_4$, $V_6$. It does not even indicate whether or not a policy that offers more $V_1$ alone is to be preferred to a policy that offers more $V_2$ alone. If $V_1$ is assumed to be preferred, absurd consequences follow: Is any amount of $V_1$, no matter how small, to be preferred to any amount of $V_2$, no matter how large?

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[1] David Braybrooke and Charles E. Lindblom, A Strategy of Decision (Toronto, Ontario: Collier-MacMillan Canada, Ltd., 1963), pp. 7-8.

Financial planning in education is affected in that when the financial implications of specific academic objectives are more clearly known, priorities will tend to be established on the basis of resource constraints. A simple example will serve to illustrate the point. Suppose three objectives, P, Q, R, have different cost implications and are regarded as being independent of each other. On "academic" grounds P is given first priority, Q second, and R third, but when the financial realities are made known, the costs of P cannot be met. Actual resolutions of problems of this type are more intricate than the three cases outlined below. However, the examples indicate how implementation of academic priorities depends upon levels of financing, and how the iterative processes required to link available finances to stated objectives can alter academic priorities.

| OBJECTIVE | ORDER OF PRIORITY | COST IMPLICATIONS OF OBJECTIVE | SAMPLE DISTRIBUTIONS IF TOTAL FUNDS = 15 | | |
|---|---|---|---|---|---|
| | | | CASE A | CASE B | CASE C |
| P | 1 | 20 | 0 | 15 | 9 |
| Q | 2 | 10 | 10 | 0 | 4 |
| R | 3 | 5 | 5 | 0 | 2 |

CASE A: "P" becomes sacrificed, and probably remains number one priority for next year.

CASE B: The activities leading to objective "P" are made more economical, or the objective is modified, but "P" is top priority as the allocation shows.

CASE C: This is an example of "sharing the poverty", where none of the objectives as prescribed will be achieved, but they will all be pursued in some reduced form.

As simplistic and limited as they seem, the cases outlined reflect examples of actual problems faced in postsecondary education systems. Objectives may be compatible in relation to a given goal, but in circumstances where resource levels are unknown or are known only for a short term, the selection of priorities among objectives which have long-term implications can be futile.

Priorities among objectives can also involve strategic considerations of "which one will fly". External social or economic objectives of the day can reflect chances for success that can affect the ordering of priorities. Some would argue that the process of establishing priorities among objectives is so complex that in reality priorities are rarely selected, rather, they are earned.

### c. Planning of Programs

We move to considerations of programs which exist or are planned to meet specified or implicit objectives. Much of what has been said about the planning process, goals and objectives has general applicability to planning, particularly institutional planning in the public sector. In the remainder of the Chapter we wish to focus the discussion of our general planning process, Figure 3.1 more directly on matters pertaining to planning in postsecondary education at the institutional and system levels.

There are several ways in which the term "program" is used in advanced education. It is common practice to classify activities in three primary programs - instruction, research, and public service. In addition to describing activities the word "program" is often attached to a discipline (a Chemistry program), to a faculty (a Science program), to a degree (an M. Sc. program) or to a curricular structure which may involve more than one department (a Food Technology program). Obviously, "program planning" will have a variety of meanings given these different contexts.

#### 1. Definition of Programs

We will continue as in earlier planning papers, to lean on the concept of "program" that underlies the NCHEMS Program Classification Structure (PCS), as described in Chapter IV. A. Briefly, programs are considered to be a set of elements, each of which can be thought of as a collection of resources, technologies and policies which through integrated operation produce an output that contributes to achieving an institutional objective.

### 2. Program Planning and Financial Guidelines

In this section we wish to discuss features of program development and program selection which bear upon financial planning (box 3 and 4 on our planning process, Figure 3.1). In pursuing objectives, the reason for examining alternative programs or subprograms is, theoretically, to find "the best way". Financial considerations usually require that the best way should include criteria of economy and efficiency. However, in the absence of some initial financial boundaries, the evidence has been that academic program planning usually rejects the notion of scarcity. In their review of planning in colleges and universities Cohen and March observed that plans in academic departments were either lists for Santa Claus or fantasies which no one believed in.[1] Without clear financial guidelines, program planning tends only to seek additional capacity to deliver existing programs and to propose additional programs to those which exist. Rarely does planning include the elimination of academic programs. Cases of financial constraint have provided impetus to serious planning efforts which involve the reduction of programs, initially in support areas and gradually into academic departmental programs. The need to reduce expenditure rate increases has led to new managerial practices and organizational relationships, and a transition from questions of money to questions of purpose.[1]

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[1] Op.cit., Michael D. Cohen and James G. March.

When financial assumptions and guidelines are given for a longer term, rather than on an annual basis, the potential for focusing upon a realistic set of alternatives in program planning is considerably increased.

3. Identifying Financial Implications of Program Alternatives

Aside from the lack of knowledge of longer term financial support, there are other constraints to developing a wide variety of program alternatives. In advanced education, the "delivery system" for programs of instruction, research and public service has not changed dramatically. Research program planning in universities is decentralized to the academic departmental level, and research program alternatives are not usually examined at the faculty, institutional or system level. Exceptions are cases when research proposals are to lead to the establishment of research institutes or to the acceptance of a research project which will directly affect more than one department. While the purposes, need, directions and resources attached to research programs are not usually examined at an institutional level for compatibility with other institutional programs, the manifestation of the programs can be identified - the numbers of graduate students, postdoctoral fellows and research associates, the quality and size of library collections, the income from research grants, the numbers of books and articles published, and so on. Measures of these kinds are usually part of research program planning, but the relationship between research programs and other programs is not usually spelled out at levels beyond the departments immediately concerned.

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[1] Earl F. Cheit, The New Depression in Higher Education (New York: McGraw-Hill Book Company, 1971); Idem, The New Depression in Higher Education - Two Years Later (Berkeley, California: The Carnegie Commission on Higher Education, 1973).

As a contrast to research program planning, programs of instruction are usually planned in considerable detail and examined through several levels of the system. Consistent with specific institutional or system objectives, instructional program proposals can be elaborated with fairly "hard" information on curricula, types of instructional methods desired, numbers of staff and students involved, space and facilities required, through various stages of phasing over a period of years. In terms of financial planning, it is typically the new instructional program which receives the most scrutiny where system planning and coordination is involved, while programs which are already in place are regarded as ongoing commitments. Public service programs provided through departments of continuing education or extension are structured in a manner similar to instructional programs - lectures, seminars, workshops, etc. - but these programs are not usually subject to financial planning and coordination at the system level. In part, this may be because the financial commitments involved in most public service programs are short-term in contrast to instructional programs associated with diplomas and degrees, and in part because most of the direct costs for public service programs are recovered by student fees.

Alternatives within the instructional program structure have not been developed and implemented to a great extent. Even though a great deal of thought and experimentation has occurred, the lecture/seminar, tutorial and laboratory class are typical modes of instruction and current practice in teaching is much the same as it was a decade ago. Bowen illustrates this in the following chart:

# Old and New Methods in Teaching-Learning[1]

(New methods, adopted mainly within the past ten years, are marked with an asterisk.)

*Presentation of information, ideas, works of art, and the like*

1. Live lecture
2. The printed word, pictures, diagrams, etc.
    a. Library
    b. Textbooks
    *c. Paperback books
    d. Other printed materials
3. Museums and live performances in the arts
4. Mechanical devices
    a. Motion picture
    b. Still projectors with or without sound
    c. Recordings
    d. Radio
    e. Television
    *f. Video tape, casettes, other audio-visual aids

*Presentation of information, ideas, analysis, works of art, and the like, with interaction between teacher and student*

1. Lecture-discussion
2. Seminar
3. Tutorial
*4. Team teaching
*5. Peer-group instruction
*6. Computer assisted instruction
7. Teacher aides or assistants

*Extracurricular environment*

1. Residential and recreational facilities and programs
2. Guidance and counseling, and placement
3. Cultural events
4. Clubs, special interest groups, social activities
5. Sports
6. Other

*Independent study (for resident students as well as non-resident or "external" students).*

1. Student assignments in classes or groups
    a. Exercises and short papers
    b. Term papers
    c. Oral reports
    d. Senior theses, masters theses, and dissertations
    e. Laboratory exercises
    f. Research
    g. Creative art or artistic performances
2. Individualized independent study
3. Programmed independent study (programmed for large numbers but with each student working individually)
    *a. Credit by examination
    *b. Contract learning
    *c. Competency-based instruction
    *d. Self-paced instruction
    *e. Modular instruction
    *f. External degree
4. Practical experience relating to fields of study
    a. Internships, residencies, practice teaching, etc.
    b. Cooperative work-study
    c. Off-campus study abroad or elsewhere
    d. Travel
    *e. Granting credit for experience

*Admissions, evaluation, credentialing (important for incentives and screening)*

1. Testing
    a. Test prior to admission
    b. Tests during or at the end of courses
    c. Comprehensive tests during or at the end of programs
2. Granting of degrees, certificates, letters of recommendation

(reproduced for content, not format)

[1] Source: Howard W. Bowen, "Teaching and Learning: 2000 A.D.", New Directions for Higher Education: Strategies for Significant Survival, Vol 3, No. 4 (San Francisco: Jossey-Bass Inc., Winter 1975), pp. 6-7.

It is the various quantifications of staff and other resources in relation to these modes of instruction which indicate financial requirements, thus elements of the instructional program have received most attention in longer range financial planning at the system level of postsecondary education. In contrast, there tends to be far less documentation of accepted techniques, criteria and information on which to base financial planning for support programs. With a few exceptions of student financial aid and computer services, planning and coordination at the provincial system level does not occur for support programs. It can be argued that the extent and level of detail with which instructional program plans are examined, for unnecessary duplication and longer term financial implications, are excessive when compared to the attention given to support program plans in such areas as counselling services and libraries.

### d. Reporting and Evaluation

Although we will draw distinctions between the next two boxes (6 and 7) on Planning Process, Figure 3.1, both topics relate to the idea of accountability. As with terms such as planning and objectives, accountability is a code word, which encompasses a variety of meanings and complexities.[1]

#### 1. Accountability

The sense in which an advanced education institution or system is "called to account" for its activities, financial requests, and expenditures is a major consideration in determining the extent of detail and the scope of the planning process. In view of our earlier definition of financial planning, the concept of accountability includes being *responsible* for selecting courses of action which may ensure that desired educational outcomes can be achieved over a future period of time within agreed policies and constrained resources. It also implies that there should be credible *evidence* available on the degree to which this is being accomplished. Traditional views of financial accountability focus on whether funds are legally spent, and properly audited statements serve as appropriate evidence. More recent perceptions of financial accountability include whether value was given for funds spent. It is in this latter sense of accountability that agreement on and acquisition of evidence are difficult to obtain.

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[1] For a discussion of the meaning of accountability, and its relationship to aspects of governance, autonomy and responsibility in higher education, see W. M. Sibley, "Accountability and the University: Is Whirl to be King?", The Canadian Journal of Higher Education, Vol 2, No. 2 (1972), pp. 5-16.

Demands for accountability in advanced education have increased since the so-called Golden Age of the 1960's, when enormous expansion in college and university education was regarded as a good thing, and few questions were asked. Partly because of the decline of public confidence in advanced education and partly because of rapidly increasing costs, institutions have been called upon to identify clearly what they are doing, where they are going, and whether it's worth it. The response in governments and institutions has been to call for and generate more information, analyses and evaluations which stand alone or form an integral part of a planning process. The elements described in Figure 3.1 clearly relate to views of institutional accountability in higher education held by Howard Bowen.[1]

> The significant steps in attaining true institutional accountability are (1) to define the goals and to order their priorities, (2) to identify and measure the outcomes, (3) to compare the goals and outcomes and then to judge the degree to which the goals are being achieved, and (4) to measure the cost and judge the degree to which it approaches a reasonable minimum. Each step in this process involves extraordinary feats of identification, measurement and judgement. No one with experience in higher education believes that true institutional accountability can be readily achieved by gathering a few bits of readily available data, feeding the data into a computer, and reading off the answers.

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[1] H. R. Bowen, "The Products of Higher Education", New Directions for Institutional Research: Evaluating Institutions for Accountability, No. 1 (San Francisco: Jossey-Bass, Inc., Spring 1974), pp. 1-22.

In the section on objectives we discussed some of the problems inherent in accomplishing that part of our financial planning definition which calls for achieving desired educational outcomes within agreed policies. Agreement on a precise specification of ends and the best ways of achieving them is a rare condition in education. Nonetheless, accountability cannot be discarded simply because objectives and other components of a plan cannot be finely specified. The notion of accountability involves responsibility and trust, and the bearer of accountability assumes those burdens when carrying out assignments that can only be stated in general terms. Given reasonable bounds of autonomy, authority, resources and freedom to exercise judgments, educational systems can quite legitimately be called to account for their activities.

2. Report on Activities and Outcomes

Efforts have been made and are continuing to be made in providing an account of program activities and outcomes in postsecondary education, and we can again review some of these efforts in relation to planning. In the general planning process, Figure 3.1, box 6, "Report on Activities and Outcomes" relates to that view of accountability which answers the question "What are you doing?" Responses to the question come in a variety of forms. In addition to financial statements, the "annual report" has traditionally been used by government departments, commissions and institutions to convey both general and specific information about the year's achievements and problems. College and university calendars and timetables, newsletters, bulletins, handbooks, press releases, and student newspapers are other common sources of information.

Financial reporting in terms of unit cost has existed for over half a century - see Chapter IV. A perception of how much money was spent in support of institutional undertakings was made available through methods which used subjective judgments and factual information. The combinations of cost analysis and planning techniques that supported various PPB systems resulted in yet another level of reporting - the planned allocation of funds to *proposed* programs, activities and outcomes over specified planning periods. The full potential of PPBS has not been realized, but its uses as an improved method of reporting, along with recognition of its practical limitations and concerns about is misuse, have been acknowledged.

From a 1976 view of PPBS in the Canadian Government:

> While the coroner's report is not yet in, at least in Canada, there seems little doubt the PPB is dead. Some useful things were accomplished, as a comparison of the current *Estimates* with those of a decade ago clearly demonstrates. There is more data presented in a more useful format than there used to be. The new cross-classification of expenditures by agency, by program, by activity, as well as by object of expenditure, is undoubtedly an improvement over the old classification scheme.[1]

From an overview of the use of PPBS in advanced education in the United States:

> In other words, PPBS can help administrators, faculty and students in higher education by improving their understanding of their organization, providing better estimates of the impacts of various decisions, organizing and systematizing institutional information, and providing a more comprehensive view of the total operating status of the institution both now and in the future. On the other hand, PPBS requires increased resources for planning, may increase instead of decreasing the level of institutional and political stress, and provides an apparent means for increased central control.[2]

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[1] D. G. Hartle, "Techniques and Processes Administration", Canadian Public Administration, Vol. 19, No. 1 (Toronto, Ontario: Institute of Public Administration, March 1976), pp. 24-25.

[2] G. B. Weathersby and F. E. Balderston, PPBS in Higher Education Planning and Management, Ford Foundation Paper P-31 (Berkeley: The University of California, May 1972), p. 19.

### 3. Evaluation of Activities and Outcomes

As Figure 3.1 illustrates, we are drawing a distinction between reporting and evaluating activities and outcomes. The distinction is somewhat artificial, but for purposes of discussion we are using the term "reporting" to be associated with answering the question "What are you doing?", whereas "evaluating" is directed towards answering questions like, "How well?" and "What is it worth?"

i. Evaluation of Outcomes -- In this regard, two problems of measurement occur. The first has to do with philosophical problems of comparing the value of one desired outcome to the value of another. The complexities involved in such value comparisons defy their use in comprehensive planning processes, thus the second and more commonly accepted meaning of evaluation has to do with the assessment of performance related to given objectives. This latter view of evaluation focuses on the identification and measurement of program outcomes and the cost of programs which are directed towards objectives and goals.

The technical capabilities of providing reports on what activities are involved in various programs and what they cost has been substantially increased in recent years. It is when input to planning or calls of accountability require that there be reports not only on educational programs, but also on the products or outcomes of programs, that current technical capabilities fall short of demands. *Planning Paper One* referred to difficulties of determining, identifying, measuring and analyzing higher educational outcomes. Higher education programs have multiple and joint outcomes - some intended, others good, bad, indifferent, occurring as side effects. Analytical techniques, data bases, and information from longitudinal studies are just not available in sufficient quantity to provide the types of "hard" outcomes measures that are satisfactory in business and industrial sectors.

ii. Organizational Evaluation as a Continuous Process -- It is not simply problems of measurement that thwart efforts in evaluation. Wildavsky has pointed out that it is the nature of organizations to resist evaluation.[1] Ideally, organizations would be self-evaluating, monitoring their own activities'outcomes to determine whether they were meeting their objectives, and if not, they would desire changes in objectives or adjustments in programs to achieve objectives. However, support and enthusiasm for regular and systematic processes of evaluation throughout the institutions are more difficult to obtain. Organizational structures tend to be stable, and the desire to preserve stability, existing objectives and programs, runs counter to processes of continuous evaluation which *implies* change. Further, self-generated change requires that a climate of trust and support, rather than potential penalties, prevail throughout the institution or system. Individuals and groups will tend to withhold information and support for evaluation and indicated change if the record of evaluation shows that recommendations only lead to reduction of their resources or reinforcement for some predetermined position.

iii. Nature of Evaluation in Postsecondary Education -- The preceding is not meant to imply that evaluation does not occur, but that its predominent form is sporadic and decentralized evaluation *in* rather than *of* the institution or system. Formative evaluations-appraisals made during the operation of a program are conducted by instructors, peers, department chairmen, students, academic committees, managers, senior institutional officers, and others who can contribute evaluative information to improve the program. Summative evaluations - assessments made at the end of a program or at the end of a particular phase of a program - are conducted with the "users" in mind, and often seek opinions and facts from graduates, alumni associations, employers, other institutions and other public groups. People evaluations - examinations and reviews which assess the performance and accomplishments of students and staff - are conducted routinely and are important, perhaps sufficient, for that view which holds that the quality of a program and its outcomes is a reflection of the people involved.

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[1] Aaron Wildavsky, "The Self Evaluating Organization", Public Administration Review, Vol. XXXII, No. 5 (Washington, D.C.: American Society For Public Administration, September/October 1972), pp. 509-520.

While evaluations may fall far short of identifying the "value" of outputs and inputs, and may not occur as a continuous process, as in an ideal self-evaluating organization, the efforts at program evaluation in advanced education should not be lightly dismissed. Although, as Wildavsky points out[1], the commitment to stability in organizations is the antithesis of continuous self-evaluation, there are other types of commitments to stability which generate rigorous evaluation of educational institutional programs and desired program outcomes. Take, for example, the obligation which a college or university has in maintaining a stable and coherent curricula for students. New programs or program changes are phased-in over a period of years thereby committing an institution to deliver as advertised to students over the duration of the program. Some of the consequences of this commitment can be observed in the type of evaluations which accompany major curricular reviews.

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[1] Ibid.

Such reviews are subject to scrutiny and debate which may be far more rigorous than in other public institutions. The participatory nature of college and university governance usually means that several individuals, committees, faculty councils, and occasionally, senates, boards of governors, and funding sources, are involved in the critique, approval or disapproval of the components or the whole of academic programs. Through various stages of program review and approval, evaluative questions are sure to arise, particularly when academic units are competitors for scarce resources. Because curricular changes or new programs will often require commitment of finances, facilities and other resources for several years, one is not surprised when queries in the review of programs depart from purely academic considerations.

From a financial planning perspective, attempts at evaluation can involve assessments of whether outcomes can be increased given a fixed level of resources. There is an underlying element of comparison required in this view of evaluation, namely the appraisal of how well programs produce desired outcomes compared to alternatives that are available at similar cost. Outcome measurement difficulties typically force financial evaluation, in terms of efficiency and productivity, to focus on unit costs such as dollars per weekly student hour or productivity ratios such as weekly student hours per FTE faculty. However, while neither measure can directly reflect the resources and technologies used or the outcomes that are produced, evaluations of this kind invariably accompany annual budgeting processes. Attention becomes focused upon anticipated incomes, expenditures, workloads, and the consequences of different budgetary allocations.

iv. Feedback: A Cyclical Planning Process -- As Figure 3.1 illustrates, one would expect that the results obtained through reports and evaluations are "feedback" to provide information for reconsideration of goals, objectives and programs. What is implied is a continuous, formalized, cyclical process which generates a well-defined plan, linked closely to finances. Being flexible and iterative, the process regularly or promptly adjusts the plan to changing circumstances.

Reality is quite a different thing as we have already noted in describing some of the complexities involved in achieving the various components of the planning process. Planning processes may differ in scope and comprehensiveness; components of the process may not be clearly articulated or detailed; linkages to financing may not be obvious. Even "official" planning documents may be ignored or forgotten as a reference point in relation to major financial decisions. However, in spite of the difficulties involved, various comprehensive planning processes similar to what we have described are still advocated, attempted, and in some cases continued, in postsecondary education.

## C. Constraints, Concerns and Benefits Related to Planning

We turn now from discussing specific components of a planning process to providing some general observations on incentives for planning. We will outline a few key constraints, concerns, and benefits associated with establishing and maintaining varying degrees of "comprehensiveness" in a planning process, thereby generating varying impacts on financial planning.

### a. The Decision-Making Context

We recognize that change occurs not necessarily as a result of plans but as a result of decisions or lack of decisions, and we can therefore view financial planning as part of a decision-making context. The presence or absence of a formalized planning process and the quality and scope of the process can be judged relevant to financial planning only if it affects financial decisions. Current thinking on higher education management suggests two opposing concepts of decision making.[1] The first concept is sometimes referred to as "rational" or "comprehensive", and is associated with the notions of modern management tools and techniques, program budgeting, systems analysis, decision analysis, management information systems, and so on. The "rational" view is that people make decisions best if they are informed. Opposed to this view is the "incremental" or "remedial" view which holds that significant financial planning decisions in postsecondary education are best made on the basis of compromise and consensus as they traditionally are in democracies.

Among the constraints to better financial planning are the pressures which arise because of the contrasting traits of the two concepts or decision paradigms. From the comprehensive perspective, change is seen as intensifying the problem of prediction of student enrolment and other factors, thus creating the need to plan. Various deadlines require the *a priori* analysis of events in order to identify and deal with critical variables. Causal relations are thought to be known or at least discoverable through analysis. Goals and measurable outcomes are essential to assess the accomplishment of objectives. Preciseness and manipulation of data require quantification of variables in order to develop effective models of reality. Critical decisions are made by central planners and policy makers, so central planning offices have high priority for allocation of human talent and information systems capacity. The specification of goals, measurement of goal achievement, and analysis of causal relationships will lead to understanding and decision.

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[1] Frank A. Schmidtlein, The Selection of Decision Process Paradigms in Higher Education: Can We Make the Right Decision or Must We Make the Decision Right, Paper P-42, Ford Foundation (Berkeley: University of California, 1973).

On the other hand, the remedial concept might be represented by the following: Change is a factor which makes analysis complex and unreliable and since plans are rapidly outdated, decision making must be remedial. Decision makers resist committing themselves in advance of deadlines in order to keep their options open and to maintain flexible bargaining positions. Causal relations need not be known, because effects are discovered through response to decisions. Means and outcomes are determined simultaneously through bargaining. The fear is that an unsophisticated emphasis on quantification can bias analysis by too great a concentration on the more easily quantified variables. Since critical decisions are made throughout the organization and not only in planning offices, talent and information are required wherever decisions are made. Conflict is fundamental and inevitable and goal clarification only aggravates the situation, so due process and customs of reciprocity are a means of conflict management.

Comprehensive approaches to decision making and formal planning processes such as we have described are often thought of as equivalent to rationality. There are commonly understood norms for processes of rational decision making. However, if we focus upon the consequences of decisions, rather than the theoretical correctness of the process by which they are made, the remedial approach can prove to be eminently rational. When time and other resources are insufficient to allow the careful examination of several alternatives prior to making a decision, bargaining and compromise may well be the most rational approach. A truly rational planning process therefore can be viewed as one which synthesizes[1] factors to which both comprehensive analysis and consensus seeking have contributed, and neither concept in its extreme form can be considered the sole basis of decision making in financial planning for public colleges and universities in Alberta.

In advanced education, some degree of "remedialism" may have to be surrendered, because there may be some predicaments, pressures and uncertainties, current or on the horizon, where muddling through will not work. As Amitai Etzioni puts it, "While incrementing might well be the genius of democracy under most circumstances, to try to muddle through a hurricane is folly".[2] However, a move towards more comprehensive planning approaches will have to be tempered by the reasons for failures in formalized planning efforts.

### b. Comprehensive Planning: Concerns and Benefits

Comprehensive planning poses threats to many interests without the payoff being clear. For example, the Graham Commission in Nova Scotia outlined the benefits of university planning in terms of a rational basis for dialogue in order to prevent inappropriate government directives:

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[1] Bernard S. Sheehan, "The Question of a Synthesis in Higher Education Management", Innovative Systems: Solution or Illusion?: Proceedings of College and University Systems Exchange 1974 CAUSE National Conference, Eds. Paul J. Plourde and Charles R. Thomas (Boulder, Colorado: College and University Systems Exchange, 1975), pp. 133-153.

[2] Amitai Etzioni, "On Incrementing a Hurricane", Science, Vol. 186, No. 4166 (Washington, 29 November 1974), p. 783.

> Sound development requires careful planning, which means the clear definition of purposes and ordering of priorities for achieving these purposes, anticipation of what is required to achieve them, and a well thought-out scheme of action for using available resources to achieve the purposes as fully as possible. Careful planning is therefore necessary to ensure that universities are clear about their purposes and functions, and to ensure that the resources made available to them are used as effectively and economically as possible to achieve those purposes and perform those functions. Only then can there be a rational basis for consultation between the universities and the government, for reconciling differences in view, and for ensuring that public funds are used responsibly for their intended purposes. Otherwise, the universities may be subject to directives that are not in their, or the public's interest but that the government finds itself forced to employ in the absence of adequate knowledge about the universities and their essential purposes and functions, and thus without a basis for ensuring their accountability.[1]

However, it is the same concern about inappropriate intervention and control that has led to fears of comprehensive planning with its attendant techniques and demands for objectives, efficiency analyses and information. Discussion of PPB systems in higher education provides an example:

> . . . displaying institutional cost and activity data in great detail enables, or at least tempts, state and federal officials to exert their influence on very low level decisions. PPBS does not necessarily lead to increased centralization of decision making but already existing political pressures towards centralization are usually reinforced by the availability of data and analysis.[2]

Another disincentive to long-run comprehensive planning involves the commitment required by presidents, boards and elected government officials.

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[1] Report of Royal Commission on Education, Public Services and Provincial-Municipal Relations in Nova Scotia, Vol. 1 (Halifax: Queen's Printer, 1974), p. 298.

[2] G. B. Weathersby and F. E. Balderston, PPBS In Higher Education Planning and Management, Paper P-31, Ford Foundation (Berkeley: University of California, May 1972), pp. 18-19.

Terms of office for high level educational decision makers are relatively short compared to most long-term plans. It is natural for such officials to want to leave their mark on the educational system or institution, and there is little incentive to follow a plan or even the form of the planning and management process which has been established by a predecessor.

### c. Value of the Planning Process

In the following two sections of this Chapter, we will examine specific elements of plans and planning processes in advanced education in Alberta and other areas to determine how planning theory we have described compares to practice and in turn, how actual practice bears upon a financial plan. The discussion thus far allows us to narrow somewhat the methods by which practical financial planning in Alberta advanced education can occur. A long range financial plan that calls for precise and detailed descriptions of objectives, programs and outcomes, clearly linked with financial implications, is beyond the state of the art and human nature. While such a plan cannot be achieved, it is the explicit, participatory and communicative *process* by which such a plan is attempted that seems to have considerable value.

It may be useful to regard a formal planning process not so much as a method of arriving at "the answer" as a structure within which resolution of conflict and gaining of understanding can occur. Observations on planning in Canadian higher education have included concerns about the lack of communication, information, trust and confidence among those who must reach agreement on higher education purposes.[1] Similar concerns have been expressed in the Alberta advanced education context and described in *Planning Paper One*. The remainder of the Chapter should also assist considerations of whether the extent and significance of formal planning and the degree of comprehensiveness in Alberta advanced education planning are appropriate for the resolution or at least the accommodation of these types of concerns. In the United States where recent "master planning" or "system planning" projects have been undertaken, there are reports on the value of the process in contrast to the potential usefulness of a plan itself.[1] Documents which may finally emerge from a planning process may continue to fall short of a planner's dream, but we can be optimistic that commitments to formal planning *processes* in advanced education will yield considerably more orderly direction than can be written into a document. Perhaps if the medium is the message, then the process is the plan!

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[1] B. Trotter and A. W. R. Carrothers, Planning for Planning (Ottawa: Association of Universities and Colleges of Canada, 1974), p. 6.

## D. Planning in Alberta Advanced Education

The preceding section reflected views on postsecondary education planning and management which encompass financial planning within a general view of a comprehensive planning process. This view ascribes to the definition of financial planning, a process which is considerably more complex than simply receiving a shopping list which contains elements of continuing and proposed programs, and preparing a cost projection for these programs for a period of several years. Such a perspective will also recognize policies, procedures and traditions which have long-term financial implications within institutions or the system.

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[1] Reports on master planning efforts in Connecticut and California: J. Vasconcellos and P. M. Callan, "Legislative Master Planning: The California Experience", Planning for Higher Education, Vol. 3, No. 1:1/5, February 1974; V. A. Adams, "Developing a Master Plan", College Management, Vol. 9, No. 6, June/July 1974.

One of the ideals of a comprehensive planning process is a clear and explicit linkage among goals, objectives, programs, outcomes and financial implications. While technical, conceptual and human factors prevent many of these linkages from being clearly established, in order to be practical and credible, financial planning must be directed by official institutional and system goals, objectives, related programs, and program plans. For this reason, project terms of reference include the stipulation that policies and objectives of the Government of Alberta, the public colleges, and the universities must be accommodated. Our attempt to meet this condition has involved examining the content and status of plans and planning efforts in the Alberta advanced education system. In addition, a specific task was established as part of the project to identify policies and objectives in Alberta advanced education. AAEM provided considerable system-wide information, and institutional representatives confirmed specific materials related to institutional role statements. A description of the project task is given in Appendix W. In this section we will examine the nature and content of official goals, objectives, plans, planning processes and policies in Alberta for the purpose of determining how they might guide financial planning and how they might be accommodated by various financing techniques.

### a. Historical System-Wide Planning in Alberta

Efforts towards establishing system-wide educational/financial plans are not new to Alberta advanced education. Documents from the Universities

Commission[1] illustrate the thrust towards "master planning" for the universities, defined as follows:

"A 'Master Plan' then should be a statement as applied to Alberta's system of universities as well as each of the individual universities of:

"1. Philosophy (i.e. premises and general principles);

"2. Objectives (consistent with the general principles but more specific and quantitative.);

"3. Programs (i.e. those required to attain the objectives). Scope and scale of offerings of faculties, schools, institutes, etc., admission policy, fee structure, use of electronic technology, etc.;

"4. Organization;

"5. Facilities and staffing;

"6. Financing."

A provincial master planning effort was officially launched in 1970. The need for an academic master plan was recognized by Alberta universities through the Coordinating Council. In an August 1970 meeting the Council approved a resolution to have a steering committee lead the development of an academic master plan and a complementary financial master plan. An October 1970 letter from the Universities Commission Chairman requested university presidents and the Colleges Commission Chairman to appoint representatives to an Academic Master Plan Steering Committee. Details of the forma-colleges master planning efforts which were underway at that time. Although there was a recognized need for the development of a complementary financial master plan, the Universities Commission deleted this item from the terms of reference proposed by the Coordinating Council, suggesting that this matter be the subject of a proposal to be made at a later date.

After about two years of work the Master Plan Steering Committee discontinued its work without a university academic plan being published. A master plan for non-university postsecondary education was published by the Colleges Commission[1] in September 1972. The recommendations in Master Plan Number One were not the subject of specific government action, but the document was regarded by the Minister of Advanced Education as a report to generate discussion and to complement the work of the Commission on Educational Planning. The Commission Report[2], also known as the Worth Report, together with Master Plan Number One, represent the most extensive system-wide planning documents in Alberta advanced education. Both documents advocate continuous and comprehensive system approaches to planning. Both provided long-range enrolment forecasts. Long-range projections of operating expenditure, based on cost per student, are provided, as are capital cost estimates. Each report contains statements of goals for the sector and its components, and each report has numerous recommendations which, if adopted, would reflect specific objectives to be achieved. Using these and other official documents in the system we will review plans and resulting policies and actions which may bear upon financial planning.

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[1] R. A. Bosetti. The Alberta System of Postsecondary Non-University Education: Master Plan Number One (Edmonton: Alberta Colleges Commission, September 1972).

[2] Commission on Educational Planning, A Choice of Futures, Report of the Commission (Edmonton: Queen's Printer, 1972).

### b. System Level Goals and Objectives

We have discussed goals and objectives being among the main components in a planning process, with goals providing a general idea of purpose and direction, and objectives giving more specific indications of desired outcomes which can be measured or assessed in some way. Our perspective will be from the system level in Alberta, and we will examine official statements and documents which characterize goals and objectives for the system. The system goals and objectives reflected in the Worth Report[1] were examined by the Cabinet Committee on Education, and in the 1973 spring sitting of the Alberta Legislature, the Government's position on the Report was outlined. From the documentation of these statements which was provided by AAEM[2], we will refer to specific examples which relate to the planning process in general and financial planning in particular.

Consistent with the view that public policies are the main determinant of goals in education, the Worth Report called for educational planning to be correlated with general social and economic planning(223). The suggestion of an Integrated Provincial Development Plan (72) was rejected by the Minister of Education when he indicated the Government position during the 1973 spring sitting. However, a response from the Minister of Advanced Education which was tabled later in the session indicated that his

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[1] Ibid.

[2] See Financial Plan Project Supplementary Documents File, Section 3.

Department was still studying the recommendation. Another potential input to goal formulation was the Worth Report alternatives between the "second phase industrial society" and the "person-centered society".

Statements in the Worth Report entitled "ideals" (37), "guiding principles" (44) and "general goals" (47) all possess degrees of abstraction characteristic of our earlier definition of goals. Even so, the Government's endorsement of these statements was cautious and qualified.

> "Ideals:
>
> "- a *futures-perspective* that embodies the belief that we must alter the time-bias in education toward the future;
>
> "- *life-long learning*, a commitment to extend education on a continuing, though intermittent, basis throughout the lifetime of each citizen, according to individual needs and desires;
>
> "- faith in *participatory planning* to harness the resources and will of Albertans so that the difficulties inherent in this educational transition may be surmounted;
>
> "- development of socially sensitive, *autonomous individuals* and unequivocal support for their right to exist in an environment that will encourage personal growth to the fullest extent of their capabilities."
>
> "Guiding Principles:
>
> "*Adaptability*
> The educational system should be able to respond easily and quickly to new circumstances.
>
> "*Context*
> Educational experiences should be seen to be relevant to both current realities and future probabilities.
>
> "*Coordination*
> Various aspects of the educational enterprise should function in harmony with each other and with other sectors or activities of society.
>
> "*Diversity*
> Variation in educational experiences and organization should be encouraged.
>
> "*Efficiency*
> The educational system should achieve maximum effect with minimum effort and expense.

"*Equity*
Education should be available on a just and fair basis with equality of output or similarity in achievement and effect.

"*Participation*
All those affected should share in the determination of policy for education.

"*Personalization*
Activities in education should be related to the needs, aspirations and rights of the individual.

"*Quality*
The educational system should strive for excellence in everything that is undertaken.

"*Unity*
Education should develop those behaviours that facilitate human communication and social integration necessary for collective action to sustain personal growth."

"General Goals:

"*Personal Autonomy*
To nurture growth toward self-hood and individual freedom

"*Social Competence*
To nurture the capacity for satisfying relations with others

"*Ethical Discretion*
To nurture the development of personal values and a social conscience

"*Creative Capacity*
To nurture the growth of broad leisure and recreational interests and skills

"*Career Proficiency*
To nurture the development and maintenance of occupational competence

"*Intellectual Power*
To nurture the use and extension of intellectual and aesthetic abilities"

On the matter of priorities among goals, the Worth Report observed:

> The general goals for education in Canada, and for many other countries, have an enduring quality. Alberta is no exception. The original goals formulated for the educational process when the province was founded in 1905 have persisted to the present. Major alterations sometimes appear to have taken place in response to changing circumstances but, in fact, the basic goals for education in Alberta have remained relatively constant. They have simply been broadened on the basis of precedent with a few minor fluctuations in emphasis. These differences in emphasis become most apparent when attempts are made to assign priorities.

> It is, therefore, not surprising that an opinion poll taken in this province in 1959, verified in part by a similar poll in 1969, showed that there was little consensus concerning the importance to be assigned to various tasks in public education.[1]

Along with these general goals, ideals, and guiding principles, and closer to our notion of specific objectives, are about 400 recommendations, suggestions and proposals in the Worth Report. During the 1973 spring sitting of the legislature the government responded to about 150 of these statements. Some recommendations were endorsed or rejected in principle; some were under study; some were in stages of implementation; some were classified as not being in the jurisdiction of the government as they related to activities of the federal government, local boards, parents, schools and teachers; and finally, there were some which the provincial government was prepared to implement after further consultation and assignment of priorities.

In addition to this rather extensive documentation of government positions on the Worth Report, there are statements of goals and objectives related to non-university advanced education in Master Plan Number One along with statements in Hansard which represent goals, objectives and program proposals in the educational system. In Alberta advanced education, many of the goals and objectives stated for the system and its parts can be grouped under topical headings and related to specific programs (combinations of policies, activities, resources, etc.). In some cases the relationship between goals, objectives and corresponding programs is clear, deliberate and sustained. There are other cases where the relationship between programs and system goals or objectives is somewhat obscure.

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[1] Op.cit., Commission on Educational Planning, p. 44.

## c. Goals, Objectives and Related Actions

As part of the "project Task on Alberta Goals and Objectives" (see Appendix W), AAEM was asked for information in a format which would indicate the relationship of official statements of goals and objectives (as we have referred to them in the Worth Report, Master Plan Number One and Hansard), specific actions taken and the nature of communicating these matters to institutions in the system. This document prepared by AAEM[1] appears to be the first summary in one document of a variety of planned or implemented programs which relate to goal or objective topics in Alberta advanced education. From this document we have selected content which bears upon several characteristics of a practical financial plan, and while the format of the following summary does not represent an official classification system, it is useful in that major program and policy efforts can be related to topics of goals and objectives which have had official recognition.

| GOAL/OBJECTIVE TOPIC | RELATED ACTIONS |
|---|---|
| Autonomy/Governance: Institutions should be autonomous and should have local rather than provincial governmental structures for governance. | - numerous ministerial assurances on institutional autonomy were given in the House when the Department of Advanced Education was being organized and later reorganized.<br>- establishment of advisory committees to act as buffers between government and institutions, but not as replacements for former commissions.<br>- while a definition of autonomy was not attempted, the Minister of Advanced Education and Manpower drew a distinction between autonomy in scholarship and autonomy which relates to fiscal responsibility and accountability (Hansard, May 29, 1975). |

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[1] See Financial Plan Project Supplementary Documents File, Section 4.

- withdrawal by AAEM of Draft Advanced Education Act which was seen by some institutions as a threat to their autonomy.

- in addition to reaffirming the view that local people should be involved in the governing bodies of universities and colleges, ministers have indicated the need to assess the governance structures of the provincially administered institutions.

*Implications for financial planning: Government policies imply a commitment to avoid any direct specification of funds among normal institutional programs. It would be consistent with and possibly supportive of this position to include in a financial plan a provision for a lump sum grant which would continue to allow institutions to allocate funds internally according to their own priorities.*

**Student accessibility to higher education should be "universal"/"open door".**

- universal access as referred to in the Worth Report was endorsed in principle by the government during the 1973 spring sitting of the Legislature.

1. Evidence of the endorsement would include:

   (a) the provision of alternative admission and delivery systems by establishment of: Athabasca University; programs through ACCESS and the Innovative Projects Funds and Lakeland College.

   (b) alterations to Student Finance regulations to reduce financial barriers to advanced education.

   (c) sustained efforts of AAEM to increase transferability of credits among institutions in the system resulted in the establishment of a Council on Admission and Transfer which developed a policy, procedural guidelines, and a Provincial Transfer Guide in 1976.

   (d) publication by the Department in 1975 of draft policies on "brokerage" to facilitate contractual programming arrangements between institutions as one means of providing access to equitable educational opportunities for Albertans.

   (e) the former Minister's statement to the House, March 27, 1972, that "at this time" no quotas should be imposed anywhere in advanced education.

(f) the Minister's statement to the House, May 29, 1975, to the effect that a student should be able to go to his first choice of higher education institutions in the system.

(g) specific policies developed to encourage proposals on native student educational services through the Program Coordination Policy.

2. There is evidence that endorsement of the principle of universal or open access is subject to certain restrictions. Alberta Hansard of March 2, 1973 indicates the government's understanding that admission preference is given to Alberta students. The House was also advised on May 21, 1974, that access to some programs is restricted for reasons of cost and educational planning which should take into account employment opportunities for graduates.

- higher fees for foreign students is also a matter that has seen different government positions over the past few years. The Worth Report recommendation of substantially higher fees for foreign students was endorsed by the government in the 1973 spring sitting, but the November 4, 1974 Hansard indicates that the former minister did not advocate differential fees which would be barriers to foreign students. October 18, 1976 Hansard now shows the government's intention to proceed with the two-tier approach to student tuition, to be implemented in September, 1977.

*Implications for financial planning: To have all programs at every institution open to all qualified applicants is beyond practical implementation when considering goals of accessibility. Like other provinces, Alberta government policies reflect postsecondary education accessibility at a price. Even if overall enrolment growth in Alberta advanced education were to be minimal over the next several years, the distribution of students among various programs could have implications for both the financial requirements of the system and the distribution of funds among the institutions. AAEM initiatives in growth planning, which we will discuss in more detail later, indicate a view to provide for student "places in the system". Further elaboration of institutional growth plans may allow for more thoroughly developed resource need projections and accompanying financial plans. At this stage, however, the financial plan will have to accommodate unforeseen shifts in enrolment among programs.*

The teaching/learning process should be enhanced, and opportunities for recurrent education should be provided.

- the need for evaluation reform, emphasis and innovation related to the teaching/learning process has been referred to in Master Plan Number One, the Worth Report, and ministerial statements to the House. Evidence of programs include:

(a) establishment of the Innovative Projects Fund.

(b) ACCESS Stimulation Grants.

(c) establishment of Learning Systems Branch in the Department to provide leadership and assistance to institutions and the Department.

(d) the Department is working with the University of Alberta on a proposal for a Centre for Instructional Development.

(e) the Department has asked Cabinet for a decision on a proposal to organize and coordinate the systematic cooperative development of Computer Assisted Instruction.

(f) capital funds have been provided for development of institutional learning centres.

(g) the government endorsed the Worth Commission statement that suggested more attention to the development of Canadian study programs. The Premier also expressed his concern in this regard in a letter to university presidents.

(h) relating to recommendations in the Worth Report and Master Plan Number One, the Department developed a Further Education Policy to facilitate voluntary involvement by adult Albertans and to encourage inter-agency communication, cooperation and coordination in further education programming.

*Implications for financial planning: Planning initiatives for programs are taken by AAEM as well as the institutions. The financial plan will have to allow for special programs which may be associated with the institutions, but may involve AAEM in initiating, planning, monitoring and managing such programs and related funds.*

Organization/Planning - the need for planning and coordination was referred to in Master Plan Number One and the Worth Report. The government endorsement of this need, along with the dissolution of the Colleges Commission and the Universities Commission, placed the responsibility for system planning and coordination in the Department of Advanced Education. During the 1973 spring sitting of the Legislature the government endorsed the need for:

(a) planned differentiation in mission, size, and character;

(b) colleges having parity in higher education so as to not be institutions with a junior partner role;

(c) parity between city and non-city educational opportunites;

(d) specification and coordination of the role of each sector, institution and program;

(e) detailed development plans being the responsibility of each institution;

(f) federation through coordination by having the Department provide broad guidelines within which individual institutional planning can proceed.

*Implications for financial planning: The examples above are among many which support the system view of Alberta advanced education. Although detailed institutional plans have not been developed in a form that can provide for a comprehensive system plan, the financial plan will have to support as much as possible those characteristics of an educational system which relate to the interdependence of its components.*

Financing - (a) government endorsed and implementated the Worth Report recommendation for a three-year operating grants scheme which ended in 1976. Since then financing has been on an annual basis.

(b) government endorsed the Worth Report recommendations regarding differentiation in function implying differentiation in resource allocation, and the need for a new basic formula for higher education financing.

(c) the government endorsed the view that the federal government should undertake full responsibility for providing financial assistance to foreign students from underdeveloped countries.

(d) on the matter of tuition fees the government rejected the Worth Report proposal that tuition should be set at about 25% of the program costs.

(e) the Worth Report recommendation that program expenditures be more directly related to program objectives was endorsed by the government.

(f) there was no government statement on the long-range financial estimate contained in the Worth Report.

**The government should assist in the provision of certain student services.**

- activities related to student services primarily involved:

  (a) provision of counselling and career information through the VISA system, the publication "It's About Time", and counselling provided through Career Centres.

  (b) provision of financial assistance through the Student's Finance Board.

  (c) assisting with student summer employment through the STEP program.

  (d) provision of day care facilities at most provincially administered institutions.

  (e) conducting a student housing study.

**Research policies.**

- consideration of policies regarding applied research in the province has been initiated in the form of a position paper prepared for Cabinet, October 1975, and referred to in the 1977 spring throne speech.

- the government endorsed the Worth Report suggestion that the federal share of research costs should be increased in view of research being more of a national and international commodity than a provincial one.

> *Implications for financial planning: The last three topics in the listing relate to an accumulation of policy items that could have varying degrees of impact on a longer-range financial plan. Two major considerations emerge. First, the principle of a multiyear operating grants scheme has not been officially discarded. Second, although the government endorsed the idea of program expenditures being more directly related to program objectives, significant progress in this regard has occurred only for programs of instruction. Later in this section we will review in more detail the Program Coordination Policy which applies to all new programs of instruction for degree or diploma credit. Questions regarding research program objectives and expenditures remain the subject of policy formulation in Cabinet. Even where there are certain objectives for public service programs or for support programs such as student service, program activities are highly decentralized and expenditures are not reported in relation to these program objectives at the institution or system level. A financial plan based on extensive program objectives/program expenditure relationships is therefore not a feasible alternative at this time.*

The foregoing description could be extended further to refer to goal areas related to manpower and other activities, at the level of government or government department, which might affect financial planning. However, it is significant to note that a search and considerable effort was required to compile and interrelate statements of goals or objectives and program activities to which financial implications could be related. In many cases, specific programs can be related to topics on which the government has had a declared position. In other cases, specific action on the topic cannot be traced beyond the stage of an initial position. The Worth Report contains many recommendations on which no position was officially taken. Many items which were at one time under study have not come to be reported back to the system in a clearly documented manner. There is no documented review of system goals, objectives or programs. In short, there is no general system plan in existence as a single document or set of interrelated documents to which AAEM or institutions can refer as guidelines to a more comprehensive planning process.

d. Current System Level Planning

In addition to the lack of a specific system plan the responsibility for system level planning is not explicitly contained in legislation. With respect to advanced education, responsibility for, or even the words, "planning", "coordination", "rationalization" are not mentioned in the Department of Advanced Education Act (1972) or the Department of Advanced Education Amendment Act (1975).

In January 1973, a policy document[1] regarding AAEM functions was approved by Cabinet but apparently not circulated to the institutions. The document states that the basic purpose of the Department is to provide the leadership, service and coordination necessary to ensure the efficient development and functioning of an effective system of advanced education responsive to the needs of all Albertans. More specific to system planning responsibilities are several functions and assumptions described in the organization document whereby the Department is to:

"- secure, allocate, and ensure the efficient use of resources for advanced education.
"- identify needs and establish system-wide goals for advanced education.
"- engage in system-wide anticipatory and inventive planning and policy development.
"- provide coordination of programs and system monitoring.
"- stress system development and exercise leadership through long-range comprehensive planning while also performing an ongoing regulatory function."

To the extent that system goals and objectives are not clearly linked to specific programs, the "comprehensiveness" of a plan is reduced when considering evaluation and accountability. However, major efforts have been made towards comprehensive system-wide planning and it will be useful to examine these processes in relation to financing.

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[1] See Financial Plan Project Supplementary Reference Documents File, Section 5.

## 1. Program Coordination Policy

Two major planning and coordinating processes in advanced education have resulted in system-wide policies on admission and transferability and on program coordination. While not directly related to financial planning, the establishment of the Council on Admissions and Transfer provides an illustration of Alberta postsecondary institutions resolving problems within the context of a system of advanced education. Of more direct interest to financial planning is the Program Coordination Policy which was approved by the Minister of Advanced Education in March 1974. The policy reads as follows:

> Instructional programs in the Alberta system of Advanced Education will be coordinated to ensure the availability of effective educational experiences and to avoid unwarranted duplication of effort in institutions.

The policy was developed through extensive consultation and negotiation with the institutions, and it now serves as a basis for coordination, approval, and allocation of grants for new programs. During the development of the policy, it was agreed that the scope of program coordination was to exclude programs to be withdrawn, reduced or phased out, and to exclude programs to be significantly expanded. In the latter case it was thought that inclusion of program expansion would place a substantial burden on the policy, and expansion of programs could be covered by an enrolment-driven formula.

The definition of *program* further indicates that the policy relates to instructional activities for which official credit is given, and it does not explicitly cover support programs such as student services and institutional support.

> A Program constitutes any recurring sequence of learning experiences which are offered through an advanced educational institution or agency, and for which a unique credential is awarded to students by the institution at its discretion. The term program also refers to two or more

programs organized by an institution into a department, division, school or faculty.

The last sentence in the definition of *program* indicates that the policy covers the establishment of academic organizational units which are often the same as institutional budgetary units. This is significant in that the endorsement of the development of a new department carries with it the financial implications of normal departmental activities directed towards programs in public service or departmental research, as well as towards regular instruction.

i. Institutional Role Statements -- Initial implementation of the Program Coordination Policy required that each institution submit a role statement, defined as a short-term program development plan, which realistically identifies current programs and plans for program changes or new program offerings. Role statements were to include information on the mission, size, capabilities, clientele, service regions, community services and research programs for each institution, as well as proposed or inevitable changes in these items. Figure 3.2 indicates the general content of the role statements currently on file in AAEM. The revision and updating of role statement information is currently underway. According to the policy guidelines the set of interreconciled institutional role statements, or a system development plan, constitutes the basis on which program coordination will be achieved. The synthesis of the institutional statements was represented in a set of tables[1] which summarized all institutional programs in various categories and subcategories.

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[1] For sample page of the role synthesis tables, see Financial Plan Project Supplementary Reference Documents File, Section 6.

## Figure 3.2

## INSTITUTIONAL ROLE STATEMENT INFORMATION

| GENERAL CONTENT OF INSTITUTIONAL ROLE STATEMENTS | UNIVERSITY | | | | | PUBLIC COLLEGE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ALBERTA | CALGARY | LETHBRIDGE | ATHABASCA | BANFF CENTRE | GRANDE PRAIRIE | GRANT MACEWAN | LETHBRIDGE | MEDICINE HAT | MOUNT ROYAL | RED DEER |
| Date of Statement or Updated Statement | 1973 | 1973 | 1973 | 1975 | 1976 | 1976 | 1973 | 1973 | 1973 | 1973 | 1973 |
| Listing of Existing Academic Programs | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Listing/Comments on Planned Academic Programs | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Comments on Institutional Capability/Capacity/Limits | ✓ | ✓ | ✓ | | ✓ | | | | | | |
| General Identification of Primary Clientele | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| General Identification of Service Region | | | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Information on Current or Proposed Community Services | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Information on Current or Proposed Research Programs | | ✓ | | ✓ | | | | | | | |
| Other Planning Information | | | | | | | | | | | |
| a) institutional plan | ✓ | ✓ | ✓ | | | | | | | | |
| b) enrolment projections | | | | | | | | | | | |
| (i) by program | ✓ | ✓ | | | ✓ | | | | | | |
| (ii) aggregate | | | | ✓ | | | ✓ | | | | |
| c) financial forecasts | | | | | | | | | | | |
| (i) capital | | | | ✓ | ✓ | | | | | | |
| (ii) operating | | | | ✓ | ✓ | | | | | | |

ii. Program Approval/Financial Appropriations -- Procedures for requesting new program approval include the preparation by the institution of a "letter of intent". This letter serves to advise AAEM of the institution's plans to develop a formal proposal and enables AAEM to appropriate funds in advance. AAEM requires advance notice of 12 to 18 months for appropriation of funds to implement most new programs. Criteria for program approval are stated in the Policy documents, but it is not clear whether priorities for final approval, which may change annually, are made known throughout the system. The letter of intent includes information on the program area to be researched, implementation schedule, enrolment estimates, and preliminary estimates of operating and capital costs. Further stages of the procedure include letters of acknowledgement from the Deputy Minister, preparation of a formal proposal, approval in principle, and final approval which includes the provision of funds for program implementation. As of the fall of 1976, the Department had received and reviewed for the universities and public colleges, 127 letters of intent, had approved of 75 proceeding to the formal proposal stage, and had given final approval and arranged funding for implementation of 47 new programs. From a financial planning perspective the project recommendations will have to take into account this well-established method of planning and providing funds for new programs.

### 2. Possible Elaboration of Program Coordination in Relation to Financing

We will examine, in a preliminary way, the potential for elaboration of the Program Coordination Policy, which currently has features of systemwide program identification. The elaboration, for example, might incorporate mechanisms for projecting expenditures of existing programs in a manner that can be more specifically related to system and institutional objectives, (box 4 in Figure 3.1), while still avoiding some of the conceptual and technical difficulties of PPBS approaches.

i. System and Sector Roles and Mandates: Program and Service Policies -- There have been intentions to tie into the Program Coordination Policy some further work in the development of system and sector roles and mandates, as a guide to more detailed institutional planning. The 1975 AAEM working paper entitled "Recommendations for the Development of Program and Service Policies for Advanced Education"[1] suggests the establishment of mandates for five sectors (the word "subsystems" is used in the document): The universities, colleges, institutes of technology, urban vocational centres and rural vocational centres. Drafts of sector mandates primarily describe functions related to program orientation, delivery mechanisms and community service. The working paper itemizes a number of other broad areas of concern which would require consultation with public institutions, including:

- Service regions for institutions
- The roles of various institutions in academic upgrading
- University transfer programs in the college and AVC sectors
- Role of special purpose institutions, and the need to delineate more clearly the roles of these institutions vis-a-vis the roles of their respective sectors
- Research functions of colleges and universities
- The role of advanced education institutions in further education

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[1] See Financial Plan Project Supplementary Reference Documents File, Section 7.

- The community services role in institutions
- Allocation of programs to private institutions and accounting for trade schools offerings
- Unresolved inter-institutional role conflicts

It may take considerable effort and consultation between AAEM and institutions to accept and document an explicit set of system and sector mandates to which institutional objectives and program plans can be related. This work should be directed towards identifying more clearly the goals/objectives components referred to in our general planning process. Government acceptance and support for such mandates would also be necessary to sustain effective planning processes within the institutions. One way of accomplishing this could be the development of, adherance to and review of general memoranda of understanding such as the one approved by the government for the Northern Alberta Institute of Technology. The document[1] approved by the Minister in 1974 included enrolment growth plans, program plans and emphases, and building needs and costs to 1979.

ii. System-Wide Growth Plans -- In addition to work on Program and Service Policies, another step towards more system-wide planning and program coordination has been the start of "growth plans". In a statement prepared for Executive Council[2] AAEM indicates that growth planning for each institution of advanced education is the first step in developing a comprehensive plan for delivery of adult education programs and services to meet present and anticipated needs and demands. Growth plans, which appear to focus primarily on establishing enrolment targets for each institution, are to be developed in consultation with the institutions, and are to be subject to change through a continuous planning process. One of the views in growth planning is that Alberta advanced education should move towards providing student places in the system or region rather than attempting to accommodate the demand for places in each institution. The AAEM statement on growth planning assumes three provincial objectives related to advanced education. First, each institution should have a distinct program and service mandate. This is consistent with government endorsement of the Worth Report recommendations which called for the clear specification of each sector, institution and program. Second, there is a need to avoid large, impersonal institutions; therefore, as service demands increase, it may be necessary to consider the establishment of new institutions. Third, there is a suggestion that more regionally specialized institutions outside Edmonton and Calgary might be planned to provide increased and more equitable educational opportunity and accessibility, and promote at the same time growth in regions outside the two largest cities.

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[1] See Financial Plan Project Supplementary Reference Documents File, Section 8.

[2] Ibid, Section 9.

The growth planning effort is to establish enrolment targets for each institution which would be agreed to by government, and would assist each institution in their development of plans for programs, facilities and allocation of resources within the institution. Work on growth plans is proceeding by AAEM requesting plans or updates of earlier plans for each institution.

One example of such a request is shown for The University of Calgary[1], and in the request AAEM clearly separates items which it believes to be the University's responsibility from items which require review and analysis at the system level. The University is asked to consider in their planning:

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[1] See Financial Plan Project Supplementary Reference Documents File, Section 10.

"1. Current and planned enrolments - by Faculty
  "- inter-relationships and interdependencies among Faculties including student flows and service loads
  "- translation into staff and facilities requirements
  "- translation into financial requirements.

"2. Capacity of the institution to accommodate the plan
  "- implications for indirect instructional institutional support and ancillary services programs, staff and facilities requirements
  "- current and planned patterns of utilization of facilities and staff (extended day, summer session)
  "- alternative delivery systems (instructional modes, technology).

"3. Mechanisms and timelines for achieving the planned enrolment levels including the employment of quotas and target dates for their effectiveness."

AAEM is to take coordinative responsibility for items such as:

"1. System-level forecasts of demand and enrolment projections by program and geographic origin.

"2. Impacts of expansion, stabilization, contraction or transfer of programs on other institutions and the system in total.

"3. Capacities of other institutions in the system to accommodate displaced demands through existing and/or new programs and the lead-times required."

The document points out that the two lists of planning activities have interdependencies which will require collaboration and communication involving institutions and AAEM. However, it is not yet clear whether the content of the institutional plans will have comparable characteristics which may assist long term financial planning. The former Commissions and the current Department have acted primarily as coordinating agencies rather than central planning authorities, while the institutions have traditionally been responsible for specification of goals, objectives and program plans.

We would therefore expect the primary input on development plans to come from each institution and we would not anticipate that the assembling of institutional plans will provide descriptive and quantitative information which is comparable. For system-wide financial planning purposes, there does not appear to be imminent prospects of financing through comprehensive processes which involve fairly detailed program reviews and program plans in relation to objectives. However, if this initial phase of growth planning provides approved enrolment targets over a longer term, then this would tend to support financing schemes which are related to enrolment.

iii. Defining and Identifying Programs in Relation to Costs -- If system and sector roles were further defined and institutional growth plans developed in terms of goals, objectives and enrolment growth, the next major step in a more comprehensive planning process would be to relate, even in general terms, programs and their longer term costs to the goals and objectives which have been identified for the system or sector. This is consistent with the government-endorsed view from the Worth Report which suggested that program expenditures be more directly related to program objectives. The magnitude and complexity of this task would be revealed in the first concerted efforts to define and identify programs. During discussions of the Program Coordination Policy drafts, participants commented on the need to define "program" rigorously. While the definition used has served the Coordination Policy reasonably well, there are still difficulties in attempting to reconcile in a coordinating process, the wide scope and complexity of some programs with the straightforward and simple nature of others. A more comprehensive planning thrust which relates programs to objectives and to future program costs will require clear understandings and definitions of programs, not so much to accomplish technical elegance as to what constitutes programs, sub-programs, program elements and so on, but rather, to identify program implications in relation to costs.

There are other views of program costs which could not easily be projected. The separation of instructional, research and public service program costs have been traditional examples of this problem. Even if reasonable approximations of research program plans and costs were technically possible, they should presumably relate to some stated system or sector research objectives. The matter of provincial position on research and science policy is still under study and, federal government policies on cost sharing and research appear to compound the problem. As federal positions shift, effective research program planning is thwarted by circumstances recently described by President Gunning.[1]

iv. System Responsibilities for Programs -- More comprehensive system-wide planning approaches would also require resolution of areas of overlap with departments outside AAEM.[2] Because of the broad responsibilities of AAEM, comprehensive planning involves several departments in coordinative efforts. In cases where AAEM does not have direct responsibilities, agreements have to be reached and policies drafted to clarify their involvement.

Moves towards more comprehensive system-wide planning and related financing will have to take into account the problems of definition, identification, costing and jurisdiction of programs. There would clearly be institutional concerns and resistance to comprehensive planning efforts which penetrated into traditional institutional matters. The type of information supplied and the review undertaken to justify new program proposals under the Program Coordination Policy is extensive, and one could expect strong reactions from institutions if processes of review and funding for existing programs were to move outside the institutions. As one college stated in response to the initiation of the Program Coordination Policy, "no justification is provided for the continuation of existing courses. It is assumed that these offerings have an acceptable rationale which will justify their continued inclusion in the College program."[1]

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[1] H. E. Gunning, "President's Convocation Address" as quoted in Folio (Edmonton, The University of Alberta Staff Bulletin, June 1976).

[2] See Financial Plan Project Supplementary Reference Documents File, Section 11.

Furthermore, many institutions are already concerned that the rigorous scrutiny of program proposals within the institution, coupled with the approval process required through the Program Coordination Policy, currently consume an inordinate amount of time and effort in the system.

v. Relationship of Planning to Financing in Alberta -- It appears that the characteristic of comprehensive planning that calls for a detailed specification of relationships among objectives, programs, program plans and funding is difficult to establish and maintain, perhaps even conceptually. Corresponsdence between institutions and AAEM regarding annual and special funding over the past few years illustrates the point. On one hand there is an appreciation of the need to relate budgets to plans. On the other hand, there is no explicit evidence of the annual allocation process relating to institutional role statements, information or other plans.

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[1] See Financial Plan Project Supplementary Reference Documents File, Section 12.

One of the college submissions contained a statement of budget philosophy against which the faculty and administration had prepared the budget submission. Among a list of several considerations related to sound budget practices were two items related to our discussion of financial planning:[1]

> " 1) Establish the budget on the highest level of motivation. This means budgets are to be used as a guide to management and for measuring the actual results against the agreed upon plans.
>
> " 2) Budgets must be firmly supported by college plans, thus, budgets should not exist without a thoroughly thought out reason for being what they are. However, the budget itself is not the plan, it is merely a statement of the plan in figures."

The Minister's letter to the universities regarding budget guidelines for 1977-78 fiscal year also reflects the need for plans to be linked with financing in times of financial constraint.[2]

In spite of this philosophy, there is little evidence that annual budget request and allocations are related to institutional plans which extend beyond one year, an exception being the planning and funding for new programs. The predominant types of information which support annual budget procedures do not come from existing institutional plans or role statements.

Typically, the information related to college financing has been:

1) Budget request forms (see Appendix K), which have evolved to include expenditure categories accommodating Alberta Treasury Program Budget development, and which now request:

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[1] See Financial Plan Project Supplementary Reference Documents File, Section 13.

[2] Ibid, Section 14.

a) Volume indicators - Full-time and part-time students and projections by program, instructional hours, number of employees on leave, numbers of workshops, seminars attended, useable square footage in buildings

b) Expenditure categories - Prior year's budget and forecast plus current year's budget request

c) Manpower summary - Number of man-years and number of permanent positions, current and anticipated

2) Supplementary information to accompany budget forms:
   a) Budget document as submitted to the Board
   b) Most recent current agreements with faculty and staff
   c) Disposition of surpluses
3) Comments on inflationary pressure
4) Comments on salary costs
5) Increasing maintenance costs
6) Guidelines on percentage increase in support per FTE student
7) Tuition fee schedules
8) Costs of new programs which have received approval
9) Class size information
10) Travel policy

Similarly the type of information exchanged through narrative letters between AAEM and the universities includes:

1) Enrolment and projections of enrolments
2) Comments on inflation
3) Special problem areas (e.g., library, continuing education, medicine)
4) Workload increase

5) Salary adjustments

6) Comparative salary data

7) Unexpected enrolment growth

8) Tuition fees

9) Decreasing academic standards

10) Productivity

11) Surpluses and deficits

12) "Catch-up"

One would not expect a clear, annual translation from institutional plans to financial implications, because existing plans and roles statements are not expressed in financial terms. However, there is an absence in the correspondence of any link, even a reference, to plans in relation to financial needs and problems. What we may be observing is the shift in perception that occurs when one moves from planning to implementation. Processes which include discussion and documentation of goals, objectives and details of programs and program funding occur primarily at times of program initiation or program review. In a sense, one does not plan for something that exists. Once a program is established, energies turn from planning the program to funding it, and we observe in Alberta what is documented in the literature and our study of other jurisdictions as a predominantly incremental approach to budgeting. This is not to say that program planning ceases, but that there are types of planning that occur "within" a program. Curricular planning in existing programs is "planning", but even when the results move for approval to the institutional level, there is no institutional or system plan to which they can be clearly related.

These considerations may make it impractical to extend the Program

Coodination Policy to a method of funding established programs. However, the continued application of the current policy, together with work on role definitions and growth plans in the system encourage more comprehensive planning which may assist in identifying and resolving broad longer-range financial problems. It is unlikely that the process will result in a plan which explicitly links finances to programs and objectives according to comprehensive planning theory. However, a planning process, within the context of a longer-range financial commitment and supported by appropriate annual financing techniques, can yield better understandings and documentation which can assist more orderly development and can aid in responding to appropriate demands for accountability in the system.

## E. Comprehensive Long-Range Planning and Financing in Other Jurisdictions: Some Alberta and California Comparisons

### a. Provincial Long-Range Planning and Financing

In preceding parts of this Chapter we illustrated (Figure 3.1) and described general features of a comprehensive planning process. We presented evidence of many of the difficulties associated with formulating and implementing a comprehensive plan, but we suggested that there were benefits for the system even through formal planning processes which fall short of theoretical ideals. We related features of Alberta advanced education planning to general planning theory, focussing on areas where opportunities lie for planning efforts which might improve the system, not just in guiding longer-range financial plans but also in terms of accountability and understandings involving government, institutions and the public. The final part of this Chapter offers a counterbalance to views that more comprehensive planning approaches are only theoretical ideals for Alberta advanced education.

There is some evidence of work towards more comprehensive long-range planning in Canadian higher education.[1] Manitoba has recently completed the preliminary stage of a five-year plan for universities and St. Boniface College. Ontario has initiated work on reviewing policies and plans in the provincial university system and has had a multiyear planning process for the college system for four years. The Maritime Provinces Higher Education Commission has received five-year projections from Maritime institutions, and expects to adopt a three-year operating, capital and program plan as part of its 1977-78 financial recommendations. However, no province appears to have developed a long-range financial plan related to specified educational objectives, or an identifiable statement of long-range goals, policies or guidelines on which to develop a financial plan in postsecondary education.

Our purpose in this section is to examine the process of comprehensive long-range planning as actually practiced and related to financing in another jurisdiction. We chose California as an example because it provides one of the most extensive documentations of highly structured system-wide planning in postsecondary education. These documents provide examples of most of the components of the planning process (Figure 3.1) and illustrate the process for a large and complex system. The community college sector has one hundred institutions and over a million students, and the two public universities have a total of 28 campuses and over 400,000 students.

Documents alone do not reveal the effectiveness of the planning process in the decision making in the system. To know this would require first-hand knowledge of California postsecondary system events which are affected by personalities, policy changes and a variety of complex circumstances that result in decisions which may support or impede a plan. These are matters which are beyond the scope of our purposes of comparison. However, in that the planning documents represent official public declarations and considerable information on future directions in California postsecondary education, our interest is in the planning processes the documents describe, the type and level of detail of information presented, and the relationship of the plans to financing. We will provide these characteristics of postsecondary planning not as a recipe for what should occur in Alberta, but as a benchmark by which we can assess ways Alberta might benefit from features of comprehensive planning.

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[1] See Appendix C for summaries of a cross-Canada survey of system level plans and funding procedures in higher education.

### b. Master Planning

Since the turn of the century, California has had a number of statewide studies concerning higher education. A major master planning effort was initiated by a State Assembly Bill in 1959 and resulted in a study entitled,"Master Plan for Higher Education in California, 1960-1975".[1] It was not only increasing enrolments that gave rise to the Assembly Bill, but also the State's financial outlook and the growing concern for wasteful duplication. The master plan effort was directed towards the development, expansion, and integration of the facilities, curriculum, and standards of higher education in 64 public junior colleges, 14 state colleges, 8 campuses of the University of California and other independent institutions of higher education in the State.

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[1] Master Plan Survey Team, A Master Plan for Higher Education in California, 1960-1975 (Sacramento, California: California State Department of Education, 1960).

As the name implies, the Master Plan was a one-time study which resulted in a document which was to guide higher education for 15 years. We will note later in this section that higher education statewide planning has moved from the static concept implied in a master plan to an active mode of a continuous planning process. The Master Plan did not develop from a specific set of goals and objectives, but from a study of the following questions which were accepted as a guide and general outline for the study:

"A. What is the size of the student enrollments in higher education in California to be served by 1975, and how will they be distributed among the State's junior colleges, state colleges, private colleges, and the University of California?

"1. Should admission requirements be modified to change this distribution?

"2. What are the enrollment projections by years to 1975 for existing individual state colleges and campuses of the University of California? What are these projections as modified by the Master Plan?

"B. What should be the appropriate differentiation of functions among the junior colleges, state colleges, and the University of California in the light of present and prospective circumstances?

"C. What is the recommended priority list and time schedule for establishing new University and state college campuses? This priority list should designate the approximate location of each included institution. In what areas in the State are there needs now and by 1970 for additional junior college facilities?

"D. What is the estimated cost to the State for public higher education in the decade ahead for both capital outlay and annual operation? (These estimates should take into account the Master Plan priority list.)

"1. What proportion of the cost of junior college education for both operation and capital outlay should be borne by the State and what proportion by the local districts? Is there a need for a change of present State policy with respect to the support of junior colleges?

"2. How many lower division students who would normally enroll in a state college or campus of the University can be shifted to the junior colleges, and how can the districts meet additional costs resulting therefrom?

"3. How much of the cost of public higher education should be borne by the students? Should the present fee structure be altered?
"4. What economies can be effected in the operation of the existing institutions? Consideration should be given to economies in current operation, in capital outlay, and in the use of present physical facilities.

"E. What is California's ability to pay for the future development of public higher education in the State?

"1. What proportion of the State's budget has been and is now allocated for the support of public higher education?
"2. How does this compare with the efforts made to support public higher education in other states?
"3. What are the probable supplemental (non-State) resources for financing public higher education in California which might be tapped?

"F. What plan is recommended for the organization, control, and administration of publicly supported higher education in California?

"1. What criteria should be met by the plan recommended, and what specific functions should it serve?
"2. How should the recommended plan be implemented?"[1]

Representatives and staff from the three public sectors of higher education, the University, junior colleges and state colleges, carried out most of the survey work and there was substantial participation from the independent colleges, high schools, Department of Education and school administrator associations.

The Donahoe Higher Education Act of 1960 incorporated a number of the most significant recommendations from the Master Plan. Although amended several times in 15 years, the Act still retains its most significant feature: The differentiation of function among the three public segments of higher education. The Master Plan illustrates the importance of the link between specific system objectives on institutional role differentiation, and resulting financial implications in a long-range plan. The illustration may be useful when moving further with work on growth plans and sector role definition in Alberta.

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[1] Op.cit., Master Plan Survey Team, pp. 22-23.

### c. Differentiation of Institutional Function

Because of increasing jurisdictional problems among the public segments of higher education, the Master Plan recommended and the Legislature approved that the functions of the three segments be written into the California Constitution. Some of the significant detail of the Constitutional amendment follows:

Regarding the junior colleges -

> Public junior colleges shall offer instruction through but not beyond the fourteenth grade level, which instruction may include, but shall not be limited to, programs in one or more of the following categories: (1) standard collegiate courses for transfer to higher institutions; (2) vocational and technical fields leading to employment; and (3) general or liberal arts courses. Studies in these fields may lead to the associate in arts or associate in science degree.

Regarding the State colleges -

> The primary function of the state colleges is the provision of instruction for undergraduate students and graduate students, through the master's degree, in the liberal arts and sciences, in applied fields and in the professions, including the teaching profession. Presently established two-year programs in agriculture are authorized, but other two-year programs shall be authorized only when mutually agreed upon by the Trustees of the State College System and the State Board of Education. The doctoral degree may be awarded jointly with the University of California, as provided in Section 22552. Faculty research is authorized to the extent that it is consistent with the primary function of the state colleges and the facilities provided for that function.

Regarding the University of California -

> "The Legislature hereby finds and declares that the University of California is the primary state-supported academic agency for research.
>
> "The university may provide instruction in the liberal arts and sciences and in the professions, including the teaching profession. The university has exclusive jurisdiction in public higher education over instruction in the profession of law and other graduate instruction in the professions of medicine, dentistry, veterinary medicine and architecture.

> "The university has the sole authority in public higher education to award the doctoral degree in all fields of learning, except that it may agree with the state colleges to award joint doctoral degrees in selected fields.
>
> "The University may make reasonable provision for the use of its library and research facilities by qualified members of the faculties of other institutions of public higher education in this State."[1]

The reasons given in the Master Plan for prescribing the functions of higher education segments in the Constitution are as follows:

> Writing a statement of functions into the Constitution will bring about real advantages. Not only will the differentiation of functions have the force of law, but also the difficulty of amendment will give a new area of stability to public higher education. Enforcement, the weakest link in the old liaison machinery, can be achieved by legal processes. The knotty problem of the doctorate is settled without denying participation to the state colleges, yet providing assurance that high standards will prevail. Sharing of library and research facilities can augment scholarly production and assure fuller use of cultural assets without great extra cost to the State. Inclusion in the Constitution of a definition of functions should help greatly in eliminating duplication and provide a standard that can be used be each segment to judge which of its programs are marginal or peripheral to its functions.[2]

The relationship between these prescribed functions and financial planning becomes clear when the long-range projections of higher education enrolment and costs are given in the Master Plan. The operating cost estimates were based on historical information and trends on unit costs or expense per student credit hour by lower, upper and graduate level instruction. Capital expenditure forecasts were based upon estimates for new campuses of various kinds and sizes, as well as the per student costs for various kinds of buildings.

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[1] Op.cit., Master Plan Survey Team, pp. 199, 201 and 202.

[2] Op.cit., Master Plan Survey Team, p. 37.

### 1. Institutional Functions Related to Projections of Enrolment and Expenditure

Critical to developing the long-range financial picture for use in planning were the assumptions regarding enrolment projections to be used. The Master Plan referred to two projections: A "Status Quo" projection which assumed the continuation of existing trends and a "Modified" projection which assumed the implementation of enrolment control policies *based on the proposed definition of function.* The list of basic assumptions on which the study of long-range expenditures depended is given as follows:

> "1. The nature and rate of change of college enrollments in California will follow the modified enrollment projections cited in this report and will be distributed as predicted.
>
> "2. The number and distribution of new university or state college campuses will not vary greatly from current planning.
>
> "3. The independent colleges and universities will continue to carry a substantial proportion of the load of higher education enrollments.
>
> "4. The proportion of the costs borne by the student will remain fairly constant.
>
> "5. The differentiation of function among the public segments will be in accordance with the Master Plan recommendations."[1]

In the Alberta context, longer-range financial plans are affected by variables of the type listed above which have yet to be resolved. Policies which result from tuition studies, growth planning and role definition work could affect the accuracy of a long-range financial forecast made at this time. Even if policies were to become clearly established in these areas, however, experience in California has shown that enrolment policies based on State-approved higher education functions is not sufficient to ensure high degrees of accuracy in long-range forecasts. Ten years after the

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[1] Op.cit., Master Plan Survey Team, p. 147.

projections were made, an analysis of 1970 enrolments indicates the reasons for differences between actual and projected enrolments. In part, it was the failure of university and State college segments to divert large numbers of lower division students to junior colleges in a manner which would have been more consistent with stated policy objectives. In part, it was the "failure" of the projection to anticipate the Vietnam War which substantially increased the full-time enrolment beyond projections. Students had to be enrolled full-time to be exempt from the draft.

### 2. Other Effects of Prescribing Institutional Functions

Prescribed differentiation of function that may assist planning can cause side-effects which are frustrating to higher education segments or institutions. Notwithstanding its massive size, there is evidence that faculty members in the California State University and Colleges feel a second class status in relation to the University of California. In fulfilling its function in the Master Plan, the University of California is allowed to conduct a level of graduate teaching and research which can simultaneously enhance the professional status of its faculty. We note, as an example of our earlier discussion on goal conflicts, that in pursuing primary functions of achieving excellence in undergraduate teaching, to the exclusion of graduate teaching and research, faculty in the State University and Colleges may have high status with the Legislature at the perceived cost of status in the academic profession.[1]

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[1] Beverley T. Watkins, "Anywhere Else They'd Be No. 1", The Chronicle of Higher Education, Vol. XIII, No. 10, 8 November 1976, p. 4.

## d. Recent Planning at the System and Segment Levels

In 1970 the California Legislature decided to appoint its own committee to re-evaluate the 1960 Master Plan. This was a divergence from a tradition of planning studies conducted independent of government. Reasons given for this action include the decline of confidence in the higher education community, and the predominent influence of the University of California and the State Universities and Colleges in the Coordinating Council which existed since the adoption of the Master Plan. Two and one half years of study and hearings went into a report of the Joint Committee on the Master Plan. The report specified goals, similar to those with which we are familiar in Alberta, recommended a continuous planning process and recommended the establishment of the California Postsecondary Education Commission to replace the Coordinating Council.

### 1. The Postsecondary Commission

The Commission, created by the Legislature in 1973, is the statewide agency for planning and coordinating all postsecondary education in the State. Before examining the structure and processes of the Commission plan and segmental plans in relation to Alberta, it is important to note the authority and responsibility of the Commission.

The Commission acts in an advisory capacity to the Governor, Legislature, other officials and institutions of postsecondary education. The Commission's 1976-81 plan[1] lists the responsibilities of the Commission as specified in the State Education Code:

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[1] California Postsecondary Education Commission, A Five Year Plan for Postsecondary Education In California, 1976-81 (Sacramento, California: 1975).

"(1) It shall require the governing boards of the segments of public postsecondary education to develop and submit to the commission institutional and system-wide long-range plans in a form determined by the commission after consultation with the segments.

"(2) It shall prepare a five-year state plan for postsecondary education which shall integrate the planning efforts of the public segments and other pertinent plans. The commission shall seek to resolve conflicts or inconsistencies among segmental plans in consultation with the segments. If such consultations are unsuccessful the commission shall report the unresolved issues to the Legislature with recommendations for resolution.

"In developing such plan, the commission shall consider at least the following factors: (a) the need for and location of new facilities, (b) the range and kinds of programs appropriate to each institution or system, (c) the budgetary priorities of the institutions and systems of postsecondary education, (d) the impact of various types and levels of student charges on students and on postsecondary educational programs and institutions, (e) appropriate levels of state-funded student financial aid, (f) access and admissions of students to postsecondary education, (g) the educational programs and resources of private postsecondary institutions, and (h) the provisions of this division differentiating the functions of the public systems of higher education.

"(3) It shall update the state plan annually."[1]

An addition to the Education Code stipulates:

"It is hereby declared to be the intent of the Legislature that the fixed master plan approach in the development of public postsecondary education be replaced by a continuous planning process which includes:

"(a) A legislative study of California postsecondary education at 10-year intervals to reevaluate the planning process and provide guidelines regarding goals, societal needs and general missions of public higher education and its components.

"(b) Continuous planning by a state commission including a five-year plan which is to be updated annually."[2]

Just as AAEM has areas of overlap with other government departments and agencies, the California Commission operates as the principal planning and coordinating body within a structure of other state agencies with responsibilities for postsecondary education.

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[1] Ibid, pp. ii-iii.

[2] Ibid, p. iii.

Similar to practices of AAEM, the Commission must view postsecondary education as a whole, and integrate the planning of each segment, determining gaps in services or unnecessary program duplication. The Commission has moved somewhat further than AAEM by taking the initiative in defining goals, establishing priorities and developing broad plans of action for postsecondary education.

2. The Commission Plan Related to Alberta

We now turn to an examination and discussion of the California Postsecondary Commission's document, hereafter referred to as the CPE Plan. Descriptions of the nature and extent of detail in the CPE Plan and the relationship to long-range financing, may indicate appropriate and practical approaches towards a more comprehensive planning/financing process for Alberta advanced education.

We will recall again the planning process in Figure 3.1, not as a model for comprehensive long-range planning but as a vehicle for discussion. The components of what we described earlier as goals, objective and programs, are contained in the CPE Plan, as are summary descriptions of programs to meet the objectives, and suggestions on reporting and evaluation procedures which provide feedback to the continuous process.

i. Context of the Planning Process -- The context within which the planning process will proceed and within which general goals and more specific objectives will be formulated is set out in a section on the future of postsecondary education.[1] Assumptions are put forward on such topics as the State's continued provision of diverse educational opportunities, reasons for possible enrolment shifts, participation of minority groups, accessibility of out-of-state students, student tuition increases, enrolment projections and long-range financial support from the State. With respect to long-range expenditures the assumption made is that the allocation to postsecondary education of a percentage of the state general fund revenues will continue at the same level as has been experienced over the past five years. The Plan stresses the critical nature of the assumptions with respect to projections of expenditure and enrolment. If the two projections are not compatible with a series of goals and objectives which have been stated for postsecondary education, then some of the goals must be sacrificed or the proportion of State revenues which are available for postsecondary education must be increased. The CPE Plan records that it is this critical matter which influenced the priority order of the problems to be addressed in relation to State goals.

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[1] Op.cit., California Postsecondary Education Commission, p. 1.

With the notable exception of the three-year operating grants scheme, recent assumptions on Alberta advanced education expenditure for long-range planning purposes are provided in a limited and less explicit manner than in the CPE Plan. In his July 1976 letter to board chairmen the Minister provided universities with specific advice on funding levels for the following fiscal year and gave general impressions of the financial possibilities over the longer term. The public colleges also received similar formal specification of funding levels for their next fiscal year, but there is no evidence that AAEM provided a longer term financial context.[1]

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[1] See Financial Plan Project Supplementary Reference Documents File, Section 14.

ii. Statements of Goals/Objectives for Postsecondary Education -- The CPE Plan lists two sets of "values", similar in content to our earlier description of goals. One set is akin to the broad nature of goals for a postsecondary system, and includes general statements on topics such as quality, accessibility, diversity and accountability. The other set is values/goals for the individual, given in terms of "opportunities" such as "to pursue knowledge freely" and "responsibilities" such as "to respect the rights of others to express differing points of view".

Moving closer to our earlier description of objectives, the Plan lists a number of fairly specific "State Goals for Postsecondary Education". Items in this set of State Goals have characteristics similar to the "policy" statements in Alberta's "Policy-Guidelines-Procedures" mode of operation. The State Goals were organized and divided into five categories or comprehensive areas of concern that were identified in the two and one half year legislative study of the California system. The Commission has found the goals useful, both as a base for plans of actions and as a format for organizing information. The State Goals list is given in Appendix N, and the Commission notes that although most of the goals may have been implied by actions of the Legislature or of the postsecondary segments, this is the first time that such statements have been set down explicitly and comprehensively.

In our earlier discussion of Alberta goals and objectives we noted although numerous statements of advanced education goals, objectives, principles and policies existed with varying degrees of official status, there was no document which contained a clearly organized set of goals for the system. A review and compilation of a set of official goals for the Alberta system could usefully serve more comprehensive planning by providing general reference points for regular review of activities and outcomes.

iii. Priorities Among Goals/Objectives -- The Commission recognized that the achievement of all of the goals/objectives, however desirable, was impossible. The selection of priorities among the goals had to be made by the Commission on the basis of legislative, executive and general public concerns; priorities of the segments; and legislative mandates regarding the Commission's responsibilities. Goals selected (from those in Appendix N) for work over the following few years were based on priority problems listed by topical area and related to specific goals. The list follows:

1976 Priority Problems in California Postsecondary Education

(Listed in order of priority)

Statewide Information System (Goal IV G)

Adult Education (Goal IV F)

Financing Postsecondary Education (Goal III C):

  Public Institutions
  Independent Institutions

Regulation of Private Vocational Institutions (Goal IV E)

Regional Planning (Goal IV B)

Equal Opportunity (Goal I H)

Evaluation of Program Quality (Goal V B)

Educational and Career Counselling (Goal I A)

Vocational Education (Goal V F)

Student Financial Aid (Goal I E)

Collective Bargaining (Goal IV C)

There is evidence[1] that priority considerations are also explicitly considered for AAEM objectives in relation to provincial objectives. However, the objectives are stated in general terms, and it is not clear that those objectives which bear upon planning and financing are communicated within the system.

iv. Plans of Action and Accountability -- For each priority problem area, a "plan of action" has been developed, specifying who is responsible for taking initial action and what is to be done. The plan of action for each goal area is subdivided into manageable areas of activity identified as programs. Each program has an activity or activities that give some detail of the task and the year in which the activity is to be accomplished. Appendix N illustrates structure of a typical plan of action for a goal related to financing.

The level of detail in each plan of action provides the Commission with reference points for monitoring progress in implementing the plan. During the annual review of the plan, as required by statute, the Commission evaluates the results achieved in reaching the objectives and revises the plan accordingly, thus making the Commission publicly accountable for achieving its objectives. The first plan revision was made in 1976.

Although AAEM has not developed the CPE type of plan and specification of plans of action, AAEM has made it a practice to publish quarterly a list of priority tasks and related anticipated benefits. Priority tasks currently exist for the Department, but the quarterly list is now to be a document for internal use.[2] The summary of results of a 1976 two-day

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[1] See Financial Plan Project Supplementary Reference Documents File, Section 15.

[2] Ibid, Section 16.

Departmental meeting sets out the topics which were reviewed and lists 14 items, in order of priority, which will receive attention over the next year. The summary[1] does not specify what is to be accomplished by given dates, but the responsibility for each item is recorded. A step towards more comprehensive planning processes in Alberta would be to link objectives for the system and the province with priority tasks for AAEM and to provide this information through regular documentation to system members.

v. Evaluation and Program Review -- There are two other topics covered in the Plan which are of interest in relation to Alberta system-wide comprehensive planning: Evaluating the effectiveness of post-secondary education, and the coordinating of program and facilities planning.

A program aimed at developing criteria for evaluation of postsecondary education is part of the effort directed towards the Commission's first priority goal on developing statewide information systems. This program to organize and monitor the condition of postsecondary education has several focal points including student quality and performance, manpower needs and career preparation, and student financial aid. Included in Appendix N is a description of this program.

Coordination of program and facilities planning will be conducted according to a set of guidelines and procedures similar to the Program Coordination Policy used in Alberta since 1974. From the documentation available, it appears that Alberta policies and procedures are more extensively developed in terms of program identification, content of proposals and criteria for evaluation of proposed programs. One difference between the two procedures is in the roles of the two coordinating bodies. The California Commission is advisory whereas AAEM has decision-making authority with respect to approval or non-approval of new programs.

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[1] See Financial Plan Project Supplementary Reference Documents File, Section 17.

Another significant difference in the two coordinating procedures relates to systematic program planning, implementation and review. Consistent with the emphasis on segmental five-year plans and annual review, the Commission is considering most programs two to five years prior to the intended implementation date. It is believed that this lead time will reduce the need for the Commission to subject each program proposal to intensive review. The commitment to a continuous planning process also results in the establishment of a cyclical process which is repeated annually for program planning and review. The three public postsecondary segments, the Commission, and the Legislature are to be involved in a six step procedure which is similar to the planning, integrating and conflict resolving process which was used in launching the Program Coordination Policy in Alberta. A commitment to a continuous planning process in Alberta might warrant a regular schedule for review and revision of longer-range system and institutional plans.

### 3. Planning in the Segments

At the segment level, the University of California and the California State University and Colleges planning processes are well developed and planning documents contain the type and extent of detail which seems appropriate to guide more specific plans at both institutional and segmental levels. In the community college segment, planning is not as well developed, and the Commission notes that the Board of Governors of the California

Community Colleges has recently embarked on development of a comprehensive five-year plan for over one hundred colleges which are administered by local districts.

The Commission has a review and advising function in which it responds to planning initiatives taken by the three public segments. It is clear from the Plan that the Commission relies heavily upon institutional planning efforts in the segments. This is a posture similar to that taken by AAEM with respect to universities and public colleges. However, unlike most Alberta institutions whose record of sustained and well-documented planning is spotty or non-existent, the University of California and the California State University and Colleges have well-developed long-range plans subject to regular review. Because both institutions have attempted to link the planning and budget development process, it is useful to review some features of their plans which may be relevant to Alberta.

i. University of California Academic Plan, Phase II -- The most recent University of California academic plan is Phase II of a plan approved by the Regents in 1974. Phase II of the plan, hereafter called the UC Plan, is represented by two volumes, the first of which is a university-wide perspective and the second a compilation of Chancellor's statements for each of the nine campuses.[1]

Starting with a reference to Phase I of the University Academic Plan, Volume I of the UC Plan reaffirms a mission statement and three broad goals for University of California development in the 1970's, as approved earlier by the Regents. The Phase II UC Plan lays out a set of general university-wide problem areas and policy issues from which arise statements of objectives to be pursued during the planning period. The statements of objectives are followed by brief descriptions of actions which will be taken in relation to the objectives. The content of these statements of objectives is similar to that found in some planning documents for Alberta universities and public colleges, but as Appendix O illustrates, the UC Plan tends to provide more information on the background and future action related to specific objectives, when compared to typical planning documents which are publicly available for Alberta institutions. This section is followed by a description of more specific campus program policy questions which are under study. The volume concludes with the current status of new program proposals.

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[1] University of California, The University of California Academic Plan - Phase II: The Campus Academic Plans - Volume I - The University-wide Perspective; Volume II - The Chancellors' Statements (California: March 1975).

Summaries of campus plans are given in terms of succinct statements of campus goals, underlying assumptions, future directions, enrolment projections and proposed programs. Volume II of the UC Plan contains each Chancellor's statement for his campus. Descriptions vary in content, but for the most part they indicate the campus characteristics, programs, current problem areas and future directions.

ii. Comparisons to Planning in the Alberta System -- Planning and coordinating problems in a multicampus system such as the University of California are similar in several respects to the types of problems in the Alberta multi-institution system. Because the Alberta system is one of autonomous institutions, comparisons with the University of California system may not be appropriate in those areas where the authority for planning and management make comparisons invalid. However, to the extent that Alberta is considered to have a *system* of advanced education, we have noted three aspects of the University of California planning process which may be pertinent to more comprehensive planning in Alberta.

First, there is evidence of a more formal iterative, consultative planning process than currently exists in the Alberta system. The UC Plan stresses the resulting benefits obtained.[1] The initial step involved the preparation, through consultation with campuses, of ten-year enrolment projections, broken down by campus and level of instruction. The campuses made an initial distribution of the enrolment among their academic units, relating these distributions to academic objectives. The University's Academic Planning and Program Review Board reviewed the submissions and then *issued guidelines to the campuses regarding broad funding levels over the longer range*. The Board also pointed out to each campus any adjustments necessary in some campus objectives in relation to university-wide goals. The campuses then refined further their initial statements and indicated how they planned to distribute resources to accomplish their plans.

Recalling recent experience in Alberta, it is clear that the intent of the three-year operating grants scheme for Alberta universities 1973-74 to 1975-76 was to assist longer-range planning (Appendix I). However, in contrast to the University of California planning process, it is not apparent that Alberta universities used or were required to use the three-year scheme as an impetus to preparation or revision of a formal plan, which in turn could serve in establishing a more continuous process of iterative planning.

Second, the UC Plan speaks to the link between academic and budgetary planning. Because all of the campus plans are now prepared at the same time, and considered in relation to each other and to the university-wide plan, the university budget can now reflect in a more timely and accurate manner the academic program priorities of the whole institution. The UC Plan describes this closer relationship as particularly valuable during a slow-growth period when changes in academic programs must be accomplished through reallocation rather than addition of resources.

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[1] Ibid, pp. 3-4.

Third, we referred earlier in the report to the wide latitude which was allowed in defining a "program" as prescribed by the Alberta Advanced Education Program Coordination Policy. A program can vary from a set of courses in a new area to a new degree program or new faculty, and each such program has correspondingly different financial implications. The UC Plan indicates by the chart in Appendix O that procedures for program approval differ depending upon the type of program. In view of concerns expressed by some institutions regarding delays encountered in program approval procedures, it may be that the current Program Coordination Policy could be examined for possible modifications which would streamline the program approval process by differentiating the extent of detail and approval procedures required for various categories of programs.

iii. Planning in the California State University and Colleges -- The Chancellor's office publishes annually a document which contains existing policies, practices, and a presentation of the five-year academic master plans of the campuses.[1] The planning document reviews the functions adopted

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[1] Office of the Chancellor, Division of Educational Programs and Resources, Academic Program and Resource Planning in the California State University and Colleges, 1976-77 through 1980-81 (California: California State University and Colleges, April 1976).

for the State University and College segment and then presents information which forms the starting points for the annual planning cycle. Data are presented and discussed for areas which are particularly relevant to curricular and resource planning, including enrolment, faculty workload formulas, facilities, library development and instructional computing.

The Academic Master Plans for each campus are closely linked to resource implications based on projections of enrolment and enrolment mix by instruction type and level. Budgeting for faculty and facilities is directed primarily to meeting total enrolment demand. The relationship among enrolment, curricular and resource planning has impacts on new programs and on the review of existing programs, as explained in Appendix P. Summaries of the Academic Master Plans are provided in the five-year planning document, in the form of campus profiles, programs offered, programs proposed and dates when existing programs will be reviewed.

Similar to longer-range planning issues, annual financial allocations are based primarily on enrolment. Enrolment projection, enrolment allocation and the use of faculty staffing and other formulas are the basis for budgetary decisions throughout the segment and at legislative level. Funds are budgeted in three general categories: Support, capital outlay, and salary increases. Budget manuals used in the California State University and Colleges system indicate that there are three decisional processes required to develop the annual budget which is presented to the Board of Trustees and subsequently to the executive and legislative agencies.

"1. Base Line Budget

This process consists of adjustments to the previous year's appropriations, to provide for mandatory budget increases such as price increases due to inflation, increases in staff benefit rates, and the cost of salary step adjustments of existing employees. Thus, this process restates last year's operations in terms of this year's prices, and is addressed and calculated independently of budget consideration for prospective changes in student enrollments or facilities.

"2. Program Maintenance Proposals

This process identifies those costs that are attributable to workload changes and to accommodate growth in student enrollments and facilities. The calculation of the costs of these workload and growth factors is essentially based upon formulas and standards previously used in support budgets approved by the executive and legislative branches of state government. Thus, this projection reflects all those costs that will be required to *maintain the quality of the program* at approved workload standards.

"3. Program Change Proposals

This process identifies those costs which are not merely mandatory price increases or technical budget adjustments for program size. It presents all costs for new programs, changes in existing programs and trade-offs. Thus, this projection *defines changes in the real character of the program* of The California State University and Colleges. After campus program managers identify and submit Program Change Proposals, the campuses and the Chancellor's Office review all submissions and select those most crucial in meeting existing and projected program requirements of The California State University and Colleges.[1]

The budget manual presents formulas and standards used to calculate the costs that are attributable to workload changes and growth in enrolment and facilities.

### e. Evolution of Comprehensive Planning and a Financial Plan for Alberta

Many of the characteristics and techniques of the comprehensive planning in California are familiar to those involved in Alberta advanced education. The implementation of more comprehensive system-wide processes however, is not simply a matter of knowing how to do so. In California, the nature of State legislation plays a great part in requiring the system to conform to certain planning practices. The planning resources and technical capacity available for such extensive work are critical to more comprehensive planning. Finally, system-wide planning requires substantial will and skill of the participants and authorities involved.

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[1] Office of the Chancellor, Budget Formulas and Standards Manual (Los Angeles, California: The California State University and Colleges, 1 July 1974), Sec. B.O.O., p. 1.

Preceding sections of this Chapter have indicated ways in which more comprehensive system-wide planning can evolve in Alberta to establish more clearly accompanying links to longer-range financing. Evidence has been presented to indicate that there are several aspects of more comprehensive planning that could be applied to Alberta without eroding or enhancing existing institutional autonomy and the academic freedom of teachers and scholars. The freedom to act according to institutional goals and objectives is the essence of institutional autonomy and is not contrary to the notion of accountability. The reason for considering more comprehensive approaches relates to that part of financial planning which must ensure funding support by maintaining public trust and confidence.

At this time, there is no sufficiently comprehensive system plan on which to base a financial plan. We recognize, however, that major planning efforts - agreed upon institutional role definitions and growth plans - are still underway. The financial plan to be recommended must therefore be compatible with the development of more comprehensive plans in the system while satisfying as fully as possible the criteria for the project. The report will proceed to review a number of financial planning methods and specific financing techniques for their applicability to Alberta advanced education.

# IV. TECHNICAL ISSUES AND DIRECTIONS

In the opening section of *Planning Paper One* (2) we observed that "perhaps more difficult than the financial planning problems are problems of communicating about financial planning". We had found no agreed or standard theory or text on financial planning in higher education, nor even a *lingua franca*, even an accepted jargon within which easy communication may take place. Thus, the earlier planning papers suggested a number of concepts which we hoped would limit misunderstandings attributable to communication difficulties, while at the same time facilitating standard conceptualization of problems. The purpose of this Chapter is to build on the ideas in the previous Chapter and to outline the elements of this framework of analysis so as to provide a rational technical context for discussion and for the narrowing of alternatives and the presentation of proposals.

The problem of language is acute. The language must not only ease communication, but is also the technical language of inquiry. Thus, we present a number of taxonomies, analytical constructs, tools and techniques which together help provide the framework and linguistics for analysis and discussion on alternatives. A classification structure of educational programs is suggested to provide a skeleton to which various data, words and ideas may be systematically attached. This classification structure is useful in the treatment of program-related ideas, such as the rationale for financial plans which fund not only on the basis of instruction; it provides as well some language and the possibility for systematic arrangement of certain ideas on higher education management. A second classification scheme is presented to deal more specifically with the various alternative financing techniques and another to categorize allocation formulas is illustrated. Closely related to any financing technique is the information system which may support it. Consequently, a taxonomy for information systems is described.

Following a presentation of the various taxonomies and the related technical ideas a number of other technical issues can be addressed. Cost analysis has been closely related to higher education financing since the turn of the century. Hence, it is useful to establish the meaning of cost analysis in higher education and in a general way describe the state of the art. Also, we suggest a few new ideas on how this long-standing tool may be made more useful in approaches to our allocation problem of financial planning. Further, given a continuing demand for outcomes information and the considerable research on this topic, it is necessary to establish some of the fundamental limitations which exist in conceptualizing and measuring outcomes, and hence of financial plans that would be critically dependent on this sort of information. The traditional dependency of financial planning on analysis of future enrolment interjects the characteristics of various projecting and forecasting methodologies into our discussion of issues.

Next we review some views on costs and funding including the notion of virtual costs, the institutional perceptive of its own production function and its relation to funding, and the instruction program as a basis for funding. The question of funding for quality and the relationship between faculty collective bargaining and financial planning are also introduced. Thus, while this Chapter is neither exhaustive in topics covered nor detailed in presentation, a significant number of currently important theoretical ideas, tools and techniques are described. Finally, some of these ideas assist an explanation, given at the end of the Chapter, of why various alternative financing techniques have been given more or less emphasis in project work.

## A. Classification Structure for Institutional Programs

A classification structure for institutional programs provides a consistent means of identifying and organizing activities of postsecondary education and consequently it is an essential step toward realizing a framework for planning and analysis. It is not a new chart of accounts but may be used to array current and historical data. While it is characteristic of a structure to accommodate the objectives and modes of operation of a variety of institutions, individual colleges and universities will need to develop transformation routines to convert data from institutional records to any agreed format. Since planning and management tools, techniques, and ideas have to be discussed in terms of, and developed for, the "typical" institution, a classification structure facilitates communication in a field greatly hindered by the lack of a common technical language.

Comparative analysis is an important factor in most decisions related to funding. The paucity of measured outcomes data forces heavy reliance on what are hoped to be comparative figures from other jurisdictions or other time periods. However, once measures of higher education activities are accepted, a classification structure may provide the basis for the exchange of meaningful and consistent analytical data to assist in making better planning decisions at both the intra- and inter-institutional levels.

The most thoroughly documented, tested, and widely used classification structure is the recently revised NCHEMS Program Classification Structure (PCS)[1], shown in summary form in Figure 4.1. It may not be ideally tuned for planning and management purposes in Alberta, but it does provide an essential framework for discussion of financial planning. Hence, where it was helpful, we leaned on the PCS which has the important property of providing, in part at least, a technical language. This is not to imply that project descriptive material is full of jargon. However, we must avoid one of the major encumbrances to progress in higher education management; that is, the confusion and divisiveness caused by imprecise articulation of basic notions.

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[1] Warren W. Gulko, Program Classification Structure, Technical Report 27 (Boulder, Colorado: National Center for Higher Education Management Systems at Western Interstate Commission for Higher Education, January 1972). Dr. Gulko is associated with the Financial Plan Project.

The PCS divides campus programs into two major categories: Primary programs and support programs. Primary programs contain activities directly related to the accomplishment of primary missions of the institution. Support programs contain those activities that are necessary and vital for the successful operation of the primary programs. Support programs are structured in a manner that facilitates allocation of their costs to the primary programs for the purpose of determining average unit costs and total program costs.

The PCS uses the following hierarchical nomenclature: Postsecondary education organizational entity, program, subprogram, program category, program subcategory, program sector and program element. Program categories for the primary programs correspond to the standard taxonomy of fields of study used in Higher Education General Information Survey (HEGIS)[1]. The total coding scheme for the PCS consists of a field of at least 12 digits arrayed to show program/subprogram, HEGIS subject area, level, credit/non-credit status and

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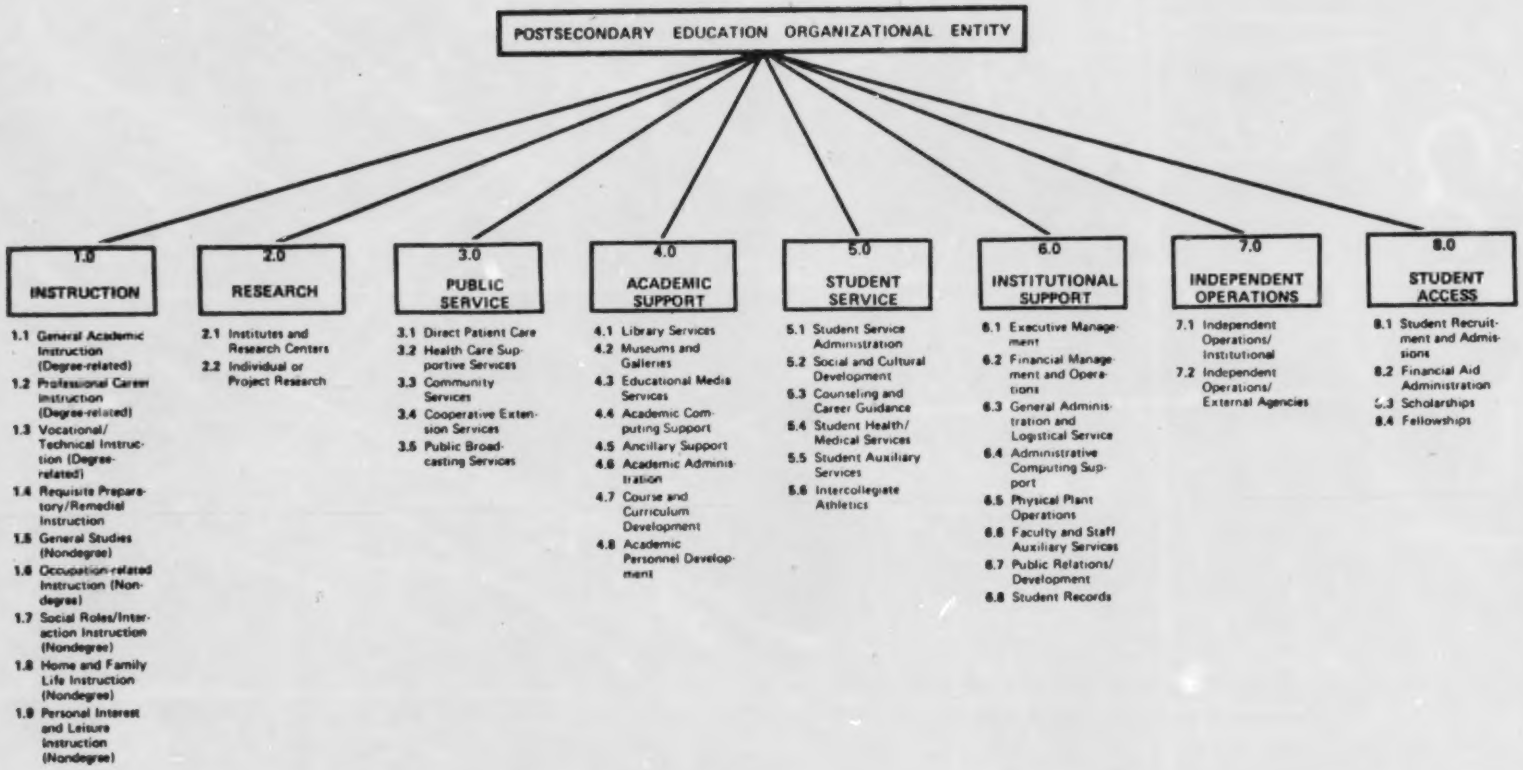
[1] Robert A. Huff and Marjorie O. Chandler, A Taxonomy of Instructional Programs in Higher Education (Washington, D.C.: U.S. Government Printing Office, 1970). The unabridged HEGIS taxonomy may not be the best alternative for Alberta. Certainly, other Alberta and Canadian structures, such as AAEM program registry, would have to be crossed over.

FIGURE 4.1

## REVISED PROGRAM CLASSIFICATION STRUCTURE


POSTSECONDARY EDUCATION ORGANIZATIONAL ENTITY
1.0 INSTRUCTION
1.1 General Academic Instruction (Degree-related)
1.2 Professional Career Instruction (Degree-related)
1.3 Vocational/Technical Instruction (Degree-related)
1.4 Requisite Preparatory/Remedial Instruction
1.5 General Studies (Nondegree)
1.6 Occupation-related Instruction (Nondegree)
1.7 Social Roles/Interaction Instruction (Nondegree)
1.8 Home and Family Life Instruction (Nondegree)
1.9 Personal Interest and Leisure Instruction (Nondegree)
2.0 RESEARCH
2.1 Institutes and Research Centers
2.2 Individual or Project Research
3.0 PUBLIC SERVICE
3.1 Direct Patient Care
3.2 Health Care Supportive Services
3.3 Community Services
3.4 Cooperative Extension Services
3.5 Public Broadcasting Services
4.0 ACADEMIC SUPPORT
4.1 Library Services
4.2 Museums and Galleries
4.3 Educational Media Services
4.4 Academic Computing Support
4.5 Ancillary Support
4.6 Academic Administration
4.7 Course and Curriculum Development
4.8 Academic Personnel Development
5.0 STUDENT SERVICE
5.1 Student Service Administration
5.2 Social and Cultural Development
5.3 Counseling and Career Guidance
5.4 Student Health/Medical Services
5.5 Student Auxiliary Services
5.6 Intercollegiate Athletics
6.0 INSTITUTIONAL SUPPORT
6.1 Executive Management
6.2 Financial Management and Operations
6.3 General Administration and Logistical Service
6.4 Administrative Computing Support
6.5 Physical Plant Operations
6.6 Faculty and Staff Auxiliary Services
6.7 Public Relations/Development
6.8 Student Records
7.0 INDEPENDENT OPERATIONS
7.1 Independent Operations/Institutional
7.2 Independent Operations/External Agencies
8.0 STUDENT ACCESS
8.1 Student Recruitment and Admissions
8.2 Financial Aid Administration
8.3 Scholarships
8.4 Fellowships

type of activity. The PCS literature describes a program as a set of program elements serving a common set of objectives. The assignment of program elements to programs is based on the "primary intent" of the program element; that is, the basic purpose or major reason for establishing and maintaining the program element. A program element is a discrete management unit that may be thought of as a collection of resources, technologies and policies that, through integrated operation, produce goods or services; i.e., an outcome of value because it contributes to an institutional objective. The program element represents the smallest, unique collection of resources that are outcome-producing activities; that is, a set of resources and activities integrated in such a manner that no one activity or resource, without the contribution or support of the others, can contribute to the objective in a measurable fashion.

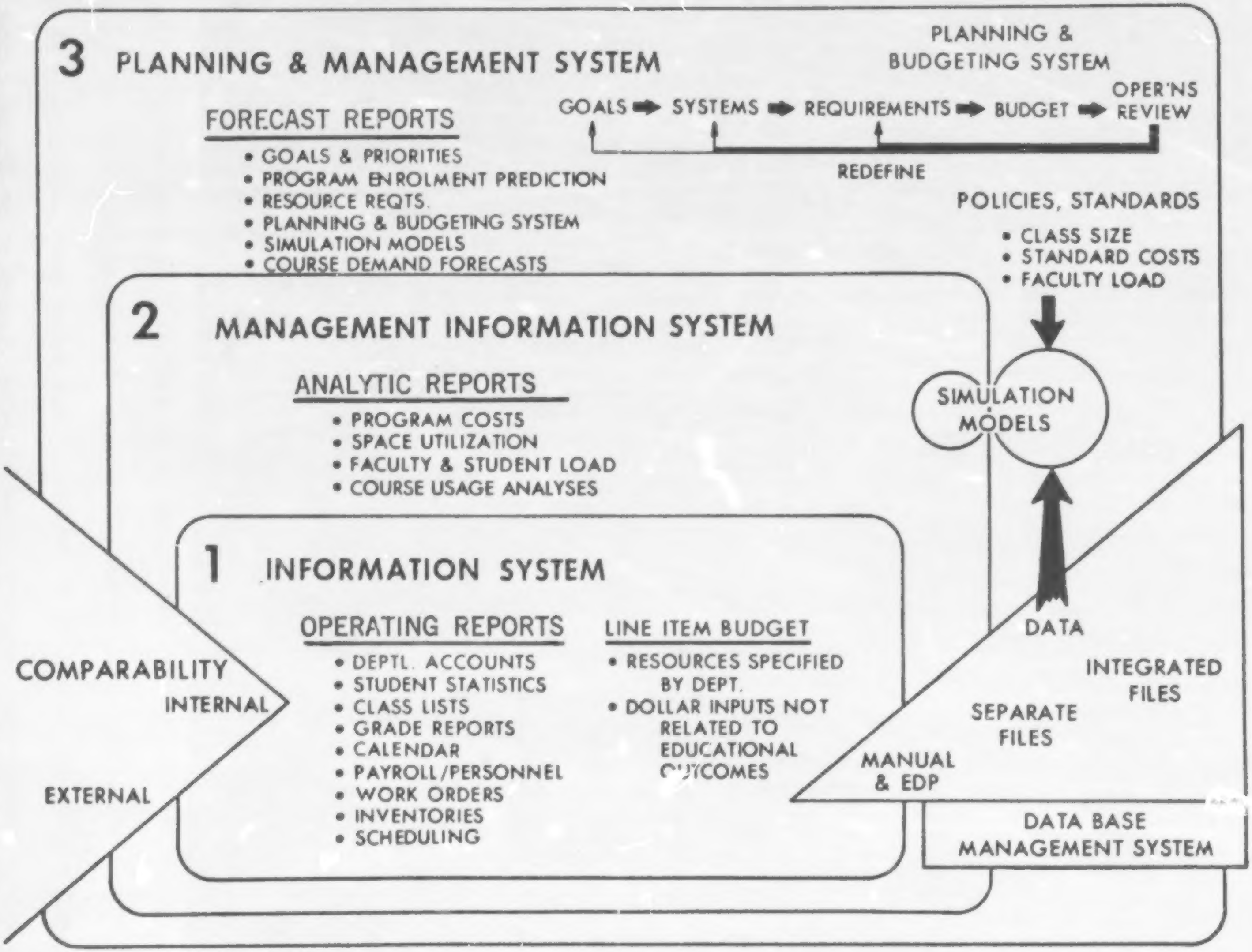
Program measures characterize each program element by indicating the resource utilization, the activity level and the output associated with the activities of the program element. Program measures are *information* items which quantify the human and physical resources assigned or utilized, activity levels generated, groups or clients served, expenditures incurred, who will bear the cost, revenues generated, and outcomes expected by program element.

## B. A Hierarchy of Information Systems

Besides the NCHEMS PCS, the earlier planning papers have introduced a number of other classification schemes developed during the Project. The "tree" from *Planning Paper One* (48) is the basis for the financing techniques classification and is shown in the next section. In this section the hierarchy of information systems presented in *Planning Paper Two* (36) is given.

FIGURE 4.2

HIERARCHY OF INFORMATION SYSTEMS



These classification structures are essential to the taxonomy of financial planning and help fabricate the framework for a rational approach to the analysis, synthesis and evaluation of financial plans in advanced education.

Figure 4.2 illustrates the hierarchy of information systems. Information systems can be categorized into three levels. The first provides basic control reports and reports on current operations. These systems, which may be automated, describe financial transactions, enrolments, grade reports, personnel information, and so forth. The second level of information systems, frequently called management information systems, produces a series of analytical reports based on the first level information system. These historical studies of resource utilization, organizational interrelationships, and enrolment patterns are intended to provide planners and managers with an improved understanding of the institution or collective of institutions. Information systems of the third type, planning and management systems, utilize historical data modified by judgment and other information to assess the implications of different planning policy decisions in order that future directions or alternatives might be analyzed. An essential point demonstrated by the hierarchy is a progression of capabilities of information systems to interrelate data elements. This, in turn, is a measure of the data base and associated systems (people/software/hardware) to produce planning information.

## C. Financing Techniques

The purpose of this section is to set out in minimal detail a comparative description of one possible spectrum of financing techniques. A secondary purpose is to further illustrate a theory and technical language which may assist communication and hence tend to focus discussion on the most important issues and concerns in financial planning.

A financing technique is the means by which resources or assistance are transferred to intended recipients. Financing techniques are implemented through detailed, specific funding procedures. Thus, in the overall planning and management context, if we attempt to achieve advanced education *objectives* by adopting certain *policies*, these are facilitated by appropriate *financing techniques*, which, in turn, are implemented through detailed and specific *funding procedures*.

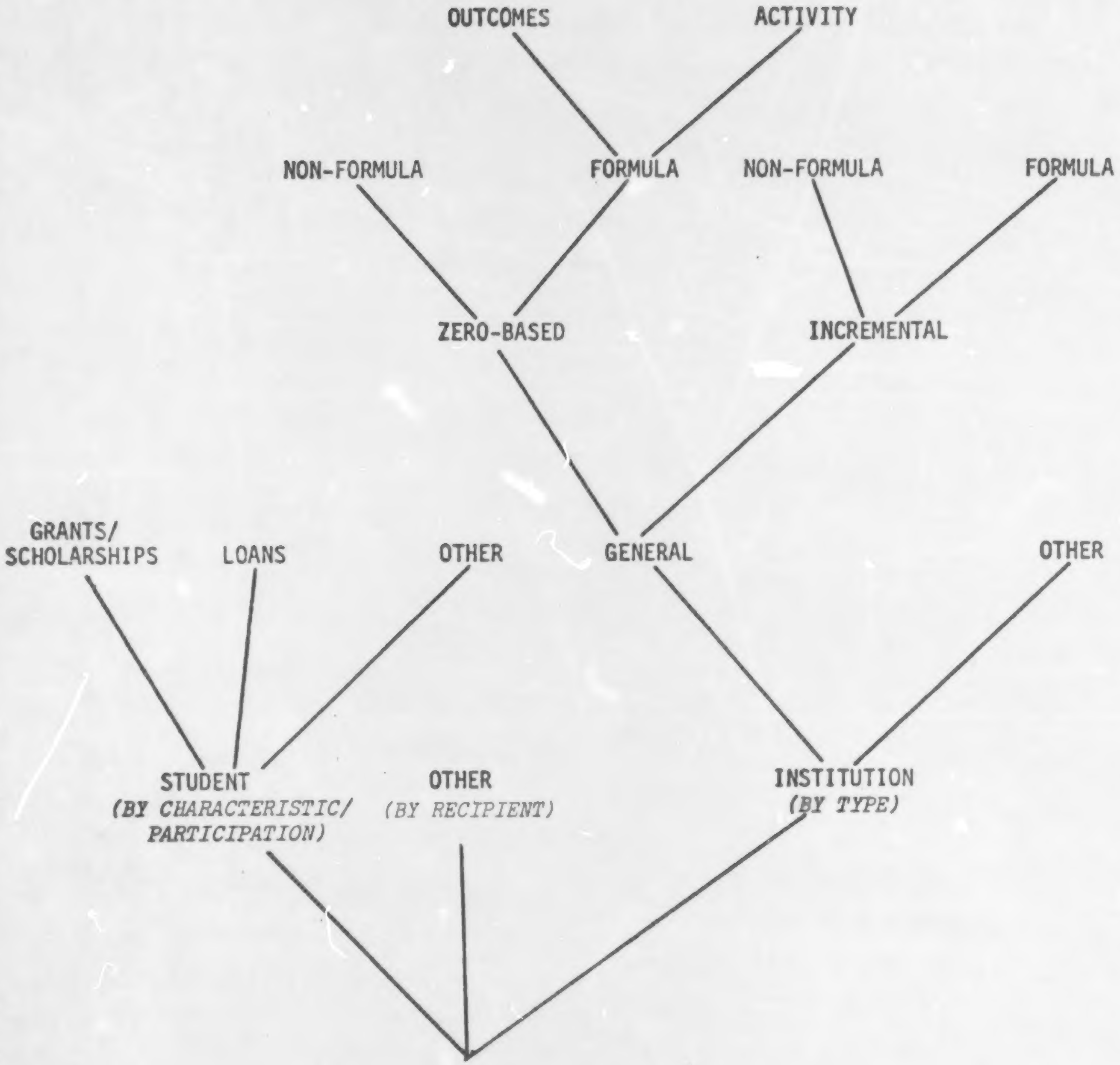
Figure 4.3, "Financing Techniques Diagram", illustrates the most frequently discussed financing techniques. Since the two elements of a financing technique are the recipient and the means, the first branches of the financial techniques "tree" illustrate the alternative recipients; that is, institutions, students, and others (for example, professors). The next level shows possible means by which these recipients may be financed by governments and other funding sources. Each successive level of the tree further classifies the possible means of financing techniques. Figure 4.3 is not intended to be totally inclusive but should provide sufficient structure for our present discussion.

### a. Students as Recipients

Students may be aided by grants and scholarships, distributed directly to the students or through institutions. Students may also receive subsidized loans. There are other means of channeling assistance; for example students and/or their families may receive tax credits, deductions or exemptions to assist in meeting the expense of advanced education. Student recipients may be categorized by characteristics, such as family income, need, ability, age group, sex, educational and work experience, as well as by current or intended academic participation - that is, full- or part-time, level of study, and

FIGURE 4.3

FINANCING TECHNIQUES DIAGRAM



type of institution.

The importance of alternative financing techniques which involve students as recipients, depends, in part, on the extent to which the student is viewed as the beneficiary of postsecondary education. If students are considered the major beneficiaries and hence are expected to pay the total cost of their education, student assistance will be in the form of repayable loans, scholarships, awards, and so on. Proponents of this position tend to believe that students have more incentive to achieve if they are paying for the cost of their education, and that these types of financing techniques enhance institutional autonomy and promote excellence through competition between institutions.

If both *students and society* are deemed to be beneficiaries of education, then the cost should be shared among the beneficiaries in proportion to the total benefit received. That is, if education yields both an individual and a social benefit, its production should be increased beyond the amount called for by individual demand alone, and the cost borne by the student should be decreased below the instruction cost per student until the combined social and individual marginal benefits equal the marginal cost. This will require that some means must be found to reimburse students for some of their educational costs. Therefore, in addition to the means mentioned above, opportunity grants, vouchers, fee waivers, loan waivers, grants, bursaries, tuition rebates, non-repayable loans and salaries to students may be considered.

### b. Institutions as Recipients

The typical means by which monies are provided to institutions for operating expense include: Tuition and other fees; lump sum and per capita grants, as well as grants based on units of workload, activity and outcomes; and other government allocations, subsidies, gifts and fees for service. All of these are grouped as "general" in the diagram of financing techniques. Certain funds are received by the institution to support particular programs or projects or to provide specific services under contract. This sort of categorical aid is characterized as "other" in Figure 4.3, together with certain tax exemptions and tax credits the institution itself and donors to the institution may enjoy. Also classified under "other" are such means of transferring resources as shared use of certain facilities and equipment, gifts-in-kind and cooperative services.

The importance of these institutions-as-recipients financing techniques varies in proportion to the perceived validity of the proposition that society is the primary beneficiary of advanced education. The underlying purpose of increased funding through institutions would be to maximize enrolment of students from all socio-economic classes, thus promoting equality of access and social mobility.

### c. Financing Techniques as Means

A recent and extensive U.S. survey of methods used in the allocating process for the 1974-75 operating budgets of state-supported colleges and universities noted: "Two separate budgeting techniques were found to be in use: Zero-base budgeting . . . and incremental budgeting . . . ."[1] Financing techniques in our "general" category may similarly be categorized as zero-based and incremental. Since about half the provinces have or had a budget or allocation formula, formula and non-formula also seems an appropriate dichotomy at this point.

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[1] Francis M. Gross, "Formula Funding of Higher Education in the United States: An Overview of the State-of-the-Art", Information for Decisions in Postsecondary Education, (Tallahasie, Florida: Association for Institutional Research, 1975), p. 47.

The following discussion of four classes of financing techniques is in the context of the decision-making perspective of this project. That is, we are concerned primarily with decisions which affect allocation of resources from government. Also, these classes are not necessarily mutually exclusive. Finally, it should be noted that within a jurisdiction or within levels of government or institutions, formula and/or non-formula approaches are mixed; that is, it is not necessary that a financial plan be exclusively formula or non-formula. However, for purposes of this more theoretical discussion, we isolate classes and focus on clear, if perhaps idealistic, alternatives. These financing techniques may be considered as modules of a practical financial plan.

### 1. Incremental: Non-Formula

This is the traditional and still most common form of allocating and budgeting. The budget base is normally taken as last year's expenditures, and in practice, the base remains largely unexamined in the budgeting and planning processes. Incremental decision making (see Chapter III. C. a.) concentrates on the marginal change or new portion of the budget or plan. This type of budgeting is a characteristic of the "muddling through" decision making which Lindblom[1] argues is inevitable in budgeting. Glenny[2] observed that, on those few occasions when the budget base is reviewed, state agencies use the following strategies: Special issue analysis, formula calculation of base, general cut, forced reallocation, priority requirements and faculty workload adjustments.

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[1] C. E. Lindblom, "The Science of 'Muddling Through'", Public Administration Review, Vol. 19, No. 2 (Spring 1959), p. 81.

[2] Op. cit., Glenny.

2. Incremental: Formula

This category includes those financing techniques which essentially generate the base allocation by some formula calculation of continuing costs, assuming no change in existing programs/services and no additional programs or services. New items are added explicitly onto the calculated base. The imprecise definition of "formula" makes the categorization of some specific incremental financing techniques into formula or non-formula a little arbitrary.

3. Zero-Based: Non-Formula

This somewhat idealized class of financing techniques includes those which build resource requirements without reference to prior-year expenses. The most practical of these may include those which are applicable to first-year financing of new programs or units.

4. Zero-Based: Formula

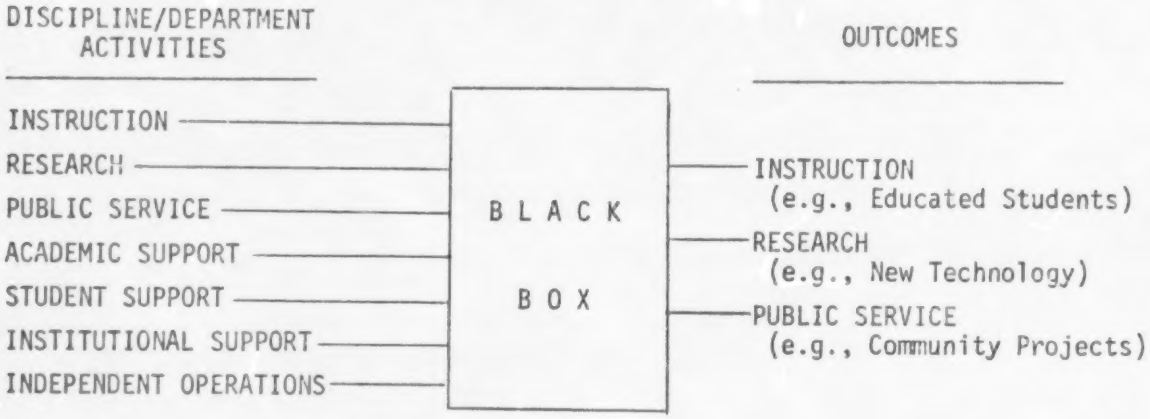
The typical budget or allocation formula is a set of statements or equations among base factors (e.g., full-time students, assignable square feet), which vary from year to year and from institution to institution, and certain fixed formula factors (e.g., enrolment units per full-time student by level) to produce the allocation or some proxy for it (enrolment units). One can argue whether the factors chosen and the relationship between the factors and the allocation are "zero-based", or really have been contrived to conform with historical precedent - thus smacking of incrementalism. The Alberta universities' experience is an interesting example in which it would seem that the allocation of a given sum of money is determined by zero-based formula. However, the actual dollar allocation may be considered incremental in that determination of the basic income unit - that is, the dollar value of an enrolment unit - is incremental.

The next level of the "tree" has been truncated to two branches; that is, to two formula financing techniques. The fundamental distinction between outcomes and activities formulas may now be explored without explicit reference to other characteristics which may differentiate financing techniques. For purposes of this discussion, we are not interested in the institutional dynamics which produced the outcomes, but merely wish to acknowledge that activities contribute to outcomes. The simple conceptualization of an institution in Figure 4.4 allows us to recognize the two principal classes of financing techniques, "activities" and "outcomes", without too much obfuscating detail.

Activity financing techniques, since they tend to relate to the essential internal dynamics of the institution, seem closely related to the concerns, information, procedures, operations, planning and management of the institutions, and of components of the institution. On the other hand, outcomes financing techniques, since there are so few agreed and measurable outcomes, tend to be dependent on postulated relations among resource requirements and what are often only proxies for outcomes, such as students in enrolment unit categories.

FIGURE 4.4

ACTIVITIES/OUTCOMES VIEW OF INSTITUTION


DISCIPLINE/DEPARTMENT ACTIVITIES
OUTCOMES
INSTRUCTION
RESEARCH
PUBLIC SERVICE
ACADEMIC SUPPORT
STUDENT SUPPORT
INSTITUTIONAL SUPPORT
INDEPENDENT OPERATIONS
BLACK BOX
INSTRUCTION (e.g., Educated Students)
RESEARCH (e.g., New Technology)
PUBLIC SERVICE (e.g., Community Projects)

Before we turn to another aspect of this discussion, it is important to note that we have not explored all possible branches of the "tree". For example, the activities/outcomes pair exists with respect to non-formula financing techniques. Thus, while we have chosen not to pursue these and other conceivable twigs at this time, this does not imply that financing techniques in these categories do not have practical significance.

### d. "Outcomes vs. Activities" Problem

The choice between activities and outcomes financing techniques can have important ramifications well beyond financial planning. In this section we consider several aspects of the outcomes/activities duality, particularly as these relate to the primary program of instruction. This discussion also provides a forum to introduce several other concepts important to financial planning, such as the Induced Course Load Matrix (ICLM) and the Instructional Cost Index (ICI)[1]. The ICLM is a multidimensional array of ratios or numerical values describing how different student enrolment patterns reflect, cause or induce teaching loads in disciplines, departments or academic units. Simply stated, the ICLM reflects the curriculum mix of various academic programs and thus is an important component of the production function for student-related outcomes. Also, the ICLM is essential in transferring costs or resource requirements from the activity centre (discipline/department/division) to the appropriate outcome (student in academic program).

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[1] George Beatty, Jr., Warren W. Gulko and Bernard S. Sheehan, "The Instructional Cost Index - A Simplified Approach to Interinstitutional Cost Comparison", Paper presented at the Ninth Annual Meeting of The Society for College and University Planning (Denver, Colorado, 15 July, 1974).

This latter view of the ICLM is demonstrated by the following equation which illustrates the relationship between the unit activity cost and the cost of a student in an academic program:

$$\$/\text{STUDENT} = \text{ICI} \cdot \text{ICLM}$$

where: $/STUDENT is the cost of a student in an academic program, ICI, Instructional Cost Index, is that proportion of total teaching department expense attributable to instructional activities, divided by the total number of instructional activity units (for example, ICI may have the dimensions, dollars per weekly student hour if ICLM elements are expressed in weekly student hours per student).

The significant feature of the ICI is that it may be calculated using certain policy variables, such as average section size, average teaching load and average faculty salary.

Conceptually, it is helpful to consider the following illustration of a relationship between certain activities and outcomes, or proxies for outcomes, of the instructional program.

| ACTIVITIES | | OUTCOMES |
|---|---|---|
| Instruction — | ICLM | — Educated Students |

Many problems in higher education management are some variation on the question whether one should consider/analyze/plan/manage/discuss from the perspective of activities side or the outcomes side of the ICLM. The activities side is associated with teaching, courses, enrolees, weekly student hours, credit hours, faculty, while the outcomes side of the ICLM is featured by terms like graduate, student, student academic program, curricula. The project staff has dubbed this whole set of practical and theoretical issues the "which side of the ICLM" problem. The correct solution, of course, depends on specific purposes and circumstances of the inquiry and the practical limitation of available information systems.

In summary, the above discussion suggests that a circumstance on one side of the ICLM has a corresponding number or a *dual* on the other side. This notion of duality is a rich source of ideas because it doubles the number of alternatives one may explore. That is, strengths, weaknesses and characteristics on one side of the ICLM have their dual on the other. Thus, the investigator in search of alternatives with different or more favorable characteristics is able to test or at least consider the dual of any thought.

Returning to the financing techniques diagram, we will use the following characteristics of formula financing techniques to illustrate further aspects of the "which side of the ICLM" problem.

*Outcomes/Educated Students -*

1) Since a most familiar institutional outcome is "student by major", funding or resource requirements prediction using a financing technique in this category would appear to be based on the most understandable and measurable outcome.

2) Data requirements for the formula are limited to the most readily available, that is, student enrolment in student academic programs.

3) The formula would be compatible with other planning and budgeting techniques, which tend also to be based primarily on student enrolment data and projections.

4) Funding on the basis of student academic programs, output categories, or on the basis of formula weights corresponding to these categories, may imply that the institutional ICLM and teaching departmental ICI's are not concerns of the funding agencies. This is the characteristic which puts the outcomes financing techniques in sharpest contrast with those based on activities.

*Activities/Instruction* -

1) The values of the institutional policy variables which form the ICI can facilitate analysis of academically and financially significant data which may be made reasonably comparable among institutions.

2) The regularly maintained institutional data base required to support these financing techniques is much more extensive than for techniques which can use simple outcomes measures such as number of students. Furthermore, the allocation formula itself may provide a rationale for structuring a data base, which, beyond funding, should be useful for other institutional and system-wide analysis and management. This tendency becomes stronger as the formula takes on the characteristics of a simulation model.

3) The instructional cost index may contain elements determined on the basis of faculty activity analysis; that is, the percentage of faculty time or effort chargeable or assignable to instructional activities.

4) Institutional "overhead" is normally not included in the ICI. Therefore, departmental expense not related to instruction and its associated overhead, as well as institutional "overhead" attributable to departmental instructional activity, may be treated separately.

## D. The Algebraic Anatomy of Formulas

Gross[1] suggests that there is a set of computational methods by which every formula calculation can be classified on the basis of three elementary algebraic structures which tend to occur in practice.[1] We do not want to introduce a new classification scheme, however, the terminology used by Gross can be improved for our purposes. One must remember that formulas are typically used in the United States for formulation of budget requests and infrequently for allocation of state funds among institutions. It is the allocation problem which is our focus. Thus, corresponding to Gross' three categories, we will use the following nomenclature:

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[1] Francis M. Gross, "A Comparative Analysis of the Existing Budget Formulas Used for Justifying Budget Requests or Allocating Funds for the Operating Expenses of State-supported Colleges and Universities", A dissertation summary, The University of Tennessee (Knoxville, Tennessee, December 1973).

*Rate Formula* - The allocation of the formula component is made on the basis of the product of a rate times the value of a parameter (measure) which is proxy for activities or outcomes. For example, weekly student hours times $/weekly student hours or on the outcomes side of the ICLM the base factor enrolment unit would be multiplied by the rate, $ per enrolment unit, to yield part or all of the formula allocation.

*Category Formula* - The allocation of the formula component is made to categories based on the share or percentage of the base factor. For example, a category may be a line item (expenditure category), a program or subprogram like libraries. Base factor may include items such as academic salaries, total direct instructional expenditures or collection deficiencies in the library.

*Productivity Ratio Formula* - The allocation of the formula component is made on the basis of the product of a productivity ratio and the value of a parameter (measure) for activities or outcomes suitably aggregated. The result of this multiplication is FTE faculty associated with or required by the activities/outcomes base factor. Normally, the productivity ratio formula is carried one step further and multiplied by the average faculty salary.

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[1] They are: "(1) the rate per base factor unit (RBFU) method where base factors such as credit hours or square feet are multiplied by specific rates per unit; (2) the percentage of base factor (PBF) method where the product is a specific percentage of a base factor such as total instructional salaries, etc.; and (3) the base factor-position ratio with salary rates (BF-PR/SR) method where FTE positions are first determined by applying specific base factor ratios to base factors such as credit hours, FTE enrolments, etc., and then multiplied by specified salary rates;" Op. cit., p.16.

This classification scheme is a useful addition to the lexicon of financial planning. The formula financing technique by which funds are allocated among a set of institutions may be classified into one of these types. Moreover, the classification is useful in describing more complex situations where the financing technique is a set of formulas, not all from the same category. Thus, the simpler, more descriptive names will assist analysis and synthesis of alternatives.

## E. The Data Base for Alternative Financing Techniques

The first planning paper proposed that there are a limited number of directions that the financial plan can take:

1) Increased emphasis on formula/outcomes financing techniques
2) Increased emphasis on non-formula/outcomes financing techniques
3) Increased emphasis on formula/activities financing techniques
4) Increased emphasis on non-formula/activities financing techniques

An important element in the decision to select one or another of these alternatives is the informational support which the Alberta institutions of advanced education can provide. The question is complex. It is difficult to know in advance what information a university or public college can produce, in what time frame, with what reliability and comparability, and at what real or imagined cost and benefit to internal planning and management. Also, what information is necessary or valuable in supporting funding decisions which will be taken in the presence of much uncertainty? The allocation problem in real or live circumstances is, of course, far more involved than our abstracted model or tree. In each new use of a model, one tries to augment it as little as possible so that unnecessary and extraneous detail does not cloud thinking on important issues - which is, of course, the reason for reducing complicated realities to models in the first place.

For any financing technique we have to decide the extent to which funding will be based on programs. Let us assume that there are two choices. The first is that which would have financing techniques depend on information on institutional primary programs of instruction, research, and public service. The second approach has information requirements that relate to the instruction program measures taken as proxy for all other program activities or outcomes. The matrix "Information Classes Corresponding to Alternative Financing Techniques", given in Figure 4.5, illustrates one way of looking at the information consequences of each alternative. The cells of the matrix describe, in a general way, the type of information which would have to be available if a particular financing technique were chosen.

In the discussion of alternative financing techniques, we have tended to recognize as equally significant, but to separate, discussion of the financing technique from that of the decision context including the way the financing technique can be applied. This is important for our model (tree) and, hence, for keeping the discussion generally focused within the proposed framework. The relationship between a financing technique and its application to financial planning decisions is perhaps most readily understood in the case of the formula/outcomes/"all other things are equal" type financing techniques. As one moves toward non-formula/activities/program type financing techniques,

## FIGURE 4.5

## INFORMATION CLASSES CORRESPONDING TO ALTERNATIVE FINANCING TECHNIQUES

| INSTITUTIONAL PROGRAMS | FINANCING TECHNIQUE<br>FORMULA/ OUTCOMES | NON-FORMULA/ OUTCOMES | FORMULA/ ACTIVITIES | NON-FORMULA/ ACTIVITIES |
|---|---|---|---|---|
| Instruction | x | z | x | z |
| Research | x' | z' | x' | z' |
| Public Service | x' | z' | x' | z' |
| Instruction As Proxy | x | z | x | z |

INFORMATION CLASSES MAY BE DESCRIBED AS FOLLOWS:

x Statistical data, numerical information; some degree of comparability among data from several institutions; data generated regularly by defined systems and procedures; data used to determine (indicate) allocation; this class of information is considered the most basic or elementary and hence specific information (data elements) in this class may be included in the other classes but these would not be the characteristic information of other classes.

z Information as in x, that is, instruction program related but not used as driving (exogenous) data to determine (indicate) allocations; hence does not have to be as numerical, objective, comparable; may be produced by ad hoc studies, surveys; includes descriptive information on policies, procedures, and quality.

x' Information as in x, that is, on data elements considered suitable to drive a formula, but probably related to variables that are:
- Less well accepted as proxies
- More difficult to define
- More difficult to measure
- Less widely used

z' Information as in z, that is, information not intended for use as driving variable and associated more with data elements that are like x', that is:
- Less well accepted as proxies
- More difficult to define
- More difficult to measure
- Less widely used
- Not regularly maintained by institutions
- More likely to be subject of ad hoc studies, surveys

Information in this class includes procedures information--that is, word descriptions of agreements, plans and understandings.

it becomes - at least from the information support perspective - more and more difficult to discriminate between the financing technique and its application in a particular context. Consequently, it is difficult to characterize, in general terms, information system features without reference to a specific description of how and in what context the financing technique will be employed. This latter observation will not be pursued further here. However, it is evident that if a selection among the alternatives moves toward the non-formula/activities/program type financing technique, increasingly the selection of the alternative must presuppose (at the very least) a milieu in which it will operate.

## F. Cost Analysis

Cost analysis attributes costs to selected cost objects by means of various formulations and usually relates to specific management problems and procedures and often to specific institutions or systems of institutions. There has been a continuing interest within institutions and government in cost analysis which will facilitate financial planning and resource allocation.[1] In this decade, extensive cost studies have been done in Alberta public colleges[2] and universities.[1] In Alberta, as elsewhere in Canada[2] and the United States[3], the primary interest in developing standardized aggregate financial reports and unit cost figures is for cost comparison in support of management or planning decision making.

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[1] Contemporary costing methodologies have not changed significantly for more than half a century. There are reports of cost analysis of higher education at least as far back as the Carnegie Foundation work in 1910 - just a few years after Alberta joined Confederation!

[2] P. J. Atherton, Alberta Junior College Cost Studies: No. III--Financing Junior Colleges in Alberta (Edmonton: University of Alberta, 1969); and D. J. Cornish and J. F. Batty, Resource Allocations: A Cost Analysis of the Five Public Colleges in Alberta 1970/71 (Edmonton: Alberta Colleges Commission, 1972).

The absence of a market-oriented measure of efficiency (like profit) together with the less than universal acceptability of most institutional outcomes measures or proxies have increased interest in comparative cost analysis. Sometimes cost data are used without regard for such fundamental questions as, "Cost of what?" "Cost to whom?" "Cost for what purpose?" Occasionally, cost data alone are supplied to address or support essentially cost/benefit questions. Following a recent and extensive survey, Adams, Hankins and Schroeder[4] concluded that there was need for further study of decision processes in higher education and the role of cost information in supporting decisions. It appears that the literature on the application of cost data to postsecondary education decision making, including financial planning at the system level, is very sparse.

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[1] M. Michaels, B. Serediak and B. S. Sheehan, The University of Calgary Cost Study 1972-73, Office of Institutional Research Report 103 (Calgary: The University of Calgary, 1974); D. Wener, University of Alberta Cost Study 1973-74, Office of Institutional Research and Planning (Edmonton: The University of Alberta, 1975).

[2] Canadian Association of University Business Officers, Association of Universities and Colleges of Canada, Council of Ontario Universities.

[3] James R. Topping, Cost Analysis Manual (Field Review Edition), Technical Report 45 (Boulder, Colorado: National Center for Higher Education Management Systems at Western Interstate Commission for Higher Education, 1974).

[4] Carl R. Adams, Russell L. Hankins and Roger G. Schroeder, The Literature of Cost and Cost Analysis in Higher Education, Draft monograph (Minneapolis: The University of Minnesota, College of Business Administration, 1975).

Notwithstanding the lack of understanding of the practical role of cost information in financial planning and, more generally, in institutional and system-wide decision making, cost information normally is thought to be valuable. One way to enhance the usefulness and effectiveness of cost information in the decision process might be to make explicit the factors which not only contribute to cost but are central to the decisions to be taken. Thus, cost data, particularly comparative cost figures for policy analysis, may be indices or aggregates of factors which are indicative not only of cost but also of educational and fiscal policy and practice in the organizational unit. Because cost data typically are in the form of numbers, they convey an impression of precision which they often do not possess. In higher education, the difficulties associated with compiling comparative cost data for planning and management decisions should leave no doubt that such data are only approximations based on assumptions and opinions.

In the appropriate decision circumstance, considering cost data as indices properly relegates comparative cost data to a red flag status - that is, if cost *differences* are larger/smaller than anticipated, the analyst or decision maker may pursue the cause of the difference. The pursuit is both informative and possible if cost data are synthesized from readily accessible variables which reflect fundamental academic and resource allocation policies. If the reason for the *difference* is found from a comparative analysis of data at this level of aggregation, decisions may be based on a better insight into the situation or circumstance. If the reason is not found at this level, there is a clear indication that the decision maker does not have sufficient basis for decision without further analysis. The path towards further analysis of the detailed operating procedures which contribute to the values of the policy variables is suggested with some specificity. This perception of an orderly and progressively more detailed analysis is referred to as the notion of "cascading data".

The cascading mode of analysis is also useful because it provides a framework for evolution of information systems - even for the determination of information requirements. However, it is clear that notions such as cascading data[1] and the instructional cost index are more useful in the comprehensive paradigm of decision making than in decision processes that are more incremental.

## G. Outcomes Measures

The demand for information on the outcomes of university and college programs is an increasing and largely unsatisfied one. The problems caused by the pressure on institutions in periods of financial constraint and shifting demand for educational services will not be solved entirely by more and better outcomes information. However, accountability can be reinforced by outcomes information which helps determine the impact that institutions have on their communities, how they provide educational opportunities, and what paths should be pursued in the future. Institutions and their constituencies have not had this sort of information, in part at least, because of the difficulties of determining, identifying, measuring and analyzing higher educational outcomes.

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[1] George Beatty, Jr., Warren W. Gulko and Bernard S. Sheehan, "The Instructional Cost Index - A Simplified Approach To Interinstitutional Cost Comparison", Paper presented at the Ninth Annual Meeting of The Society for College and University Planning (Denver, Colorado, 15 July, 1974).

The intensity of the perceived need for educational outcomes, benefits, results or impacts and the practical difficulties in providing this information presents a dilemma. Higher education is characterized by complex systems and activities which have multiple and joint outcomes - some intended, others occurring as side effects. There is a dearth of analytical and statistical techniques, as well as inadequate data bases in Alberta, as elsewhere in Canada. Despite the practical and theoretical limitations of information systems, outcomes measurements are important for institutional and system-wide planning, management and evaluation, and are basic to financial planning discussions. Nonetheless, on balance, the pursuit of the cost/benefit notion in advanced education is justified if expectations are not raised too high or are not couched in unsuitable terms such as one might expect for a manufacturing plant.

There has been much work done to improve our ability to identify and measure educational outcomes. NCHEMS' "Outcome Measures and Procedures Manual"[1] suggests an interesting list of outcomes variables and measures and their associated data acquisition procedures, as shown in Appendix S. NCHEMS, in their information exchange project (IEP), produced a list of agreed and somewhat more familiar outcomes measures.[2] It is shown in Appendix T. The procedures for determining the values of measures include questionnaire surveys and searches of institutional records.

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[1] Sidney S. Micek, Allan L. Service and Yong S. Lee, Outcome Measures and Procedures Manual (Field Review Edition) (Boulder, Colorado: National Centre for Higher Education Management Systems at Western Interstate Commission for Higher Education, 1975).

[2] Maureen Byers, Information Exchange Procedures-Outcomes Study Procedures (Boulder, Colorado: National Center for Higher Education Management Systems at Western Interstate Commission for Higher Education, 1975).

These lists of outcomes and measures, which have been prepared over many years and based on the work of a large number of people, represent, perhaps, the state of the art. While each jurisdiction may have its own jargon and each administrative level of higher education its primary focus, these lists indicate the possibilities. It is therefore clear that no analytically precise ratio of cost and its benefit is presently possible. Nonetheless, what may well be possible is more information, which is indicative of educational outcomes and benefits, and information on costs, which, while not exhaustive, provides a much better picture of the returns on investments in colleges and universities than is currently available in most jurisdictions.

## H. Student Enrolment - Projections or Forecasts?

The number of students anticipated or desired at an institution or in an education system is the typical starting point for planning. The issues surrounding the process of arriving at a credible estimate of the number and characteristics of adults seeking specific learning opportunities within a postsecondary system are important to financial planning, regardless of the financing techniques employed. Most often the demand estimate has a direct effect on the level of financial support.

Because it purportedly deals with the future, estimating student demand sometimes assumes a mystical quality. Uncertainty about the dynamics of societal interactions and their relationship to enrolment, the sparsity of information on student decisions, student movements through the educational systems and student rates of success all contribute to the difficulties of estimating demand. Figure 4.6 lists the predominant characteristics of two types of analysis of future enrolment.

A recent study[1] notes the limitations of projections with trend extrapolations and concentrates on methods that attempt to go beyond projections. The study compiles techniques into two major categories: (1) those giving policy alternatives and (2) futurist approaches. The policy alternative approach offers a set of projections, each of which is based on a different combination of assumptions, in most instances policy assumptions. The Carnegie Commission projections (1971)[2] are an example. Futurist approaches, on the other hand, are more concerned with interrelationships among factors affecting future enrolment. This technique represents a series of scenarios (descriptions of the future and the factors influencing society and interconnections among these factors). These differing scenarios are called alternative futures[3] and are used as a basis to predict future enrolments. The Michigan study and many others place great emphasis on finding means to improve enrolment projections. Some authors seem to feel that if one succeeded in isolating and "monitoring" all important factors influencing enrolment, one could devise a technique that would enable us to predict the future or variation of "futures" with reasonable certainty, depending on the assumed scenario. None of the methodologies, however, succeeds in monitoring or isolating factors affecting the decisions of potential students. A simple diagram of interrelations between

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[1] W. L. Mangelson, D. M. Norris and J. A. Seeley, Projecting College and University Enrolments: Analyzing the Past and Focusing the Future (Ann Arbor, Michigan: The University of Michigan, 1974).

[2] Carnegie Commission on Higher Education, New Students and New Places (New York: McGraw-Hill, 1971).

[3] Y. Dror, A Policy Sciences View of Future Studies: Alternative Futures and Present Action, P-4305 (Santa Monica, California: The RAND Corporation, 1970).

FIGURE 4.6

CHARACTERISTICS OF METHODS FOR
ANALYSIS OF FUTURE ENROLMENT

Projections: Extrapolation of Past into Future

1. Continuation of past trends
    a. In ratios of enrolment to demographic groups
    b. In ratios between projected categories
    c. In propensity of high school graduates to seek advanced education
    d. In underlying factors influencing enrolment
2. Emphasis on mathematical techniques:
    a. Ratios and linear regression
    b. Survival rates (grade progression)
    c. Markov chains
    d. Multiple regression
    e. Combinations of above

Forecasts: Predictions of Future

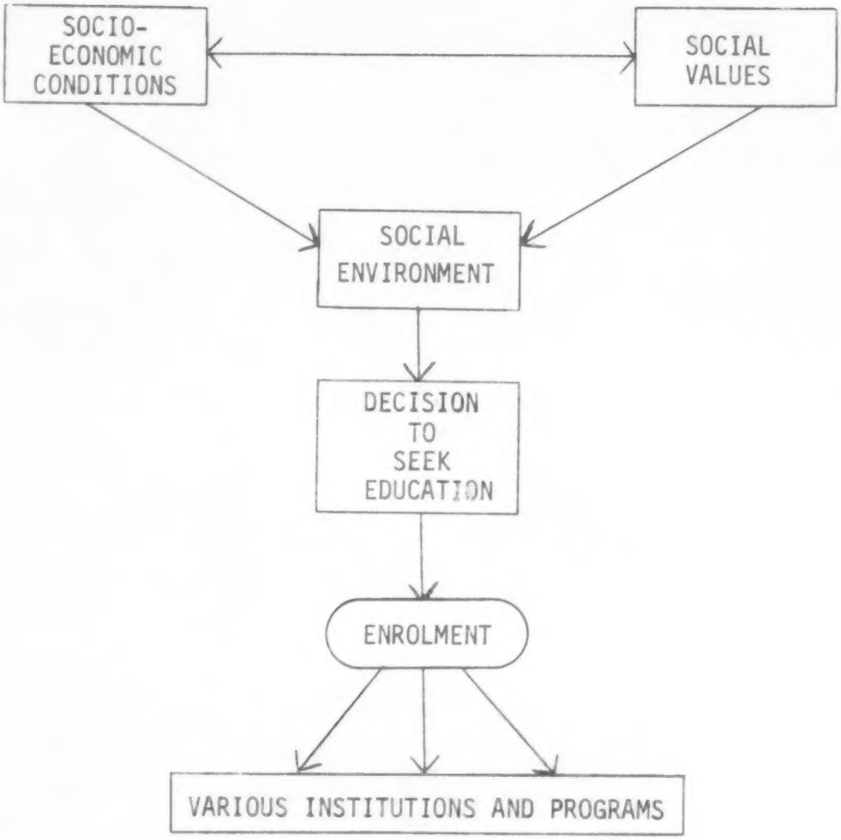
1. Emphasis on intuition and expertise of forecaster in predicting factors causing changes in past trends
2. Great importance attached to legitimacy and credibility of assumptions
3. Expectation that the forecaster can
    a. Select proper assumptions regarding enrolment
    b. Determine effects of alternative social values and conditions affecting enrolments
    c. Quantify the relationship of these factors to enrolment

factors contributing to the student's decision to enrol is shown in Figure 4.7 and helps to illustrate the critical problem areas which the futurist approach would have to address successfully.

These ideas on analysis of future enrolment are important to the decision on total system resource requirements and to the allocation problem in financial planning to the extent that a financial plan depends on them. Projections of growth in student demand may be used to make long-time commitments of resources to additional or expanded programs or, as we saw in Chapter II,

FIGURE 4.7

FACTORS CONTRIBUTING TO THE STUDENT'S DECISION TO ENROL


SOCIO-ECONOMIC CONDITIONS
SOCIAL VALUES
SOCIAL ENVIRONMENT
DECISION TO SEEK EDUCATION
ENROLMENT
VARIOUS INSTITUTIONS AND PROGRAMS

enrolment projections may be the basis of annual budgeting. Thus, the limitations of projecting and forecasting methodologies may represent constraints or boundaries for financial planning. Both the limitations of the methodologies and the way that results of enrolment projections may be employed form part of the technical context of financial planning. Consideration of projected student numbers should not however, be emphasized to the exclusion of the many other factors which influence decisions in financial planning. In Chapter III we discussed the planning process which provides the context for the consideration of student numbers. The elements of the technical context presented in this Chapter further help to keep student numbers in a proper planning perspective: Student numbers are, at best, only a proxy for demand for institutional programs other than instruction and the notion of the ICLM shows the complexity of the relationships between students and resource requirements even in the instruction program. Student numbers, even if available in great detail, do not alone bring into planning deliberations the many unique features and characteristics of the institutions and their programs.

## I. Some Views on Costs and Funding

The general perception of funding of institutions is that provincial grants pay for the educational contribution made by the institution. Taking into account the fact that the province is the major but not the only source of revenue, the equation of price and cost may have some validity at this level of generality. However, several conclusions or deductions from this generalization are often made which obscure and confound planning and budgeting. It is useful to consider some of these misconceptions which imply that particular funds or funding parameters relate to specific costs, activites or outcomes.

In higher education, it is beyond the state of the art to measure and therefore to cost precisely the outcomes and social benefits of the institutions. Hence, it is not feasible to reimburse each institution on the basis of unit outcome measurements. This is not to say that information on costs and outcomes may not be considered as indicators in support of funding decisions; only that this information must be viewed in light of its basic limitations. This situation is not unique to higher education. In most community and social service programs, it is difficult to associate specific funding with specific benefits because of joint products and spinoffs of program activities which occur.

a. Virtual Cost

While a province may provide funds for instruction to all students, say, in first-year general arts, and hence may view the cost of providing instruction to these students as equal to the total amount of these funds, the actual cost - that is, the amount of institutional funds attributable to these students - may differ considerably from the amount paid. Given traditional institutional autonomy, the different types of institutions and the effort over the years to avoid unnecessary duplication of programs, it is not surprising that each institution's internal management priorities, policies and practices result in different resources being assigned to academic departmental activities. Consequently, the funds provided by the province explicitly for certain student academic programs may be considered the *virtual cost* of these programs. The notion of virtual cost leaves open the question of whether funded activities have other products which must also be costed. Nevertheless, virtual cost is a useful concept because it makes explicit the difference between the institutional costs of certain outcomes and the perceived price which the province and other funders pay.

The concept of virtual cost leads to the related idea of the *virtual institution*. The normal outcomes of the virtual institution are educated students and graduates. Other primary programs and outcomes are not explicitly denied, but the tacit assumption is that the legislature (the government) expects each institution to behave according to the characteristics of its type of institution and hence to meet its responsibility as a university or public college under the appropriate Act. Thus, viewed from the perspective of the provincial funder, the system of advanced education is sometimes considered a virtual institution. The association of the notion of the virtual institution with funding is useful, because it allows one to concentrate on the virtual program cost from the perspective of the government in an abstract way that permits simultaneous consideration of broad government advanced education policies and practices. The assumption is that the virtual institution is realized by a complicated system of autonomous, diverse, individual institutions and programs.

The common complaint about the present allocation formula for Alberta universities is that the weights no longer reflect the cost of programs. Also, some people see a formula approach as useful to the public colleges because the weights, expected to reflect costs, would permit institutional program planning. Much of the literature either refers to the weights as costs or assumes they are related to cost. The notion of virtual cost demonstrates that the weights cannot represent actual institutional expenditures in corresponding categories. These and other practical campus concerns arise in part because of the general lack of a theoretical foundation for financial planning in higher education.

### b. Institutional Perspectives

Institutions are concerned with the creation of an educational environment which will permit attainment of their own goals and objectives. Each institution attempts to actualize its own *production function*. In the input-output language of the economist, a production function describes the relationship between sets of specified inputs and the outcomes they are capable of producing. The concern on campus is to put together, in appropriate amounts and quality, all of the factors which create a desired educational environment to sustain appropriate activities and, together with the policies and practices of the institution, produce outcomes according to institutional objectives. Thus, from the institutional perspective, funding provides the means for the acquisition of the factors of "production".

An institution tends to focus attention on utilization of *resources* that dollar allocations will provide and which permit the institution to engage in agreed activities and programs. The inherent complexity of institutions, together with the notion of the production function, reinforces the opinion that accountability for funds must be essentially procedural. Boards of governors of the institutions have legal responsibility under various statutes. Assurance that public monies are properly spent in pursuit of proper public objectives is perhaps best attained through agreed and demonstrated compliance with policies and procedures. This is not to say that analytical information on inputs, outcomes and activities is not an important aspect of the question of accountability - and hence indirectly of funding - but it is to emphasize that the intricate nature of the educational enterprise in institutions cannot be judged and evaluated on the basis of descriptive or analytical data alone. The present state of the art, the state of decision making and planning in higher education, is such that a partnership of descriptive data and procedural accountability is the best assurance that public resources are being effectively used in pursuit of societal needs and wants.

### c. Instruction Program as the Basis for Funding

Internal institutional planning and management includes the allocation of resources among organizational units on the basis (in part) of approved activities and programs. Therefore, it may be argued that the allocation of resources to institutions could be based, for example, on the primary programs identified in the PCS - instruction, research, and public service. However, funding to institutions has been proportional to, or certainly sensitive to, student numbers. The underlying assumption is that *"all other things are equal"*, and hence funding in relation to the teaching function will yield justice to institutional roles and system-wide objectives.

An alternative is to finance institutions on the basis of functions and activities beyond instruction. The innovative aspect of such a financial plan may include the separation of research and public service activities and outcomes from those associated with instruction. Unless one is prepared to recognize the many outcomes of an institution of higher education, it is possible to be led to the incorrect observation that institutions are inefficient in the production of the outcomes that are recognized and measured. The "all other things are equal" argument may be sufficient to satisfy the need for rough justice among similar institutions or within an institution among organizational units or programs of a similar type. Nonetheless, when one views all advanced education as the virtual institution, with outcomes attributed only to instruction, then cost-benefit arguments become fallacious.

The arguments and experiences with program budgeting, which of course are relevant here, do not require rehearsing - many of these seem to generate more heat than light. Program budgeting implementation difficulties arise because people allow themselves to become more concerned with form than substance. Trappings and red tape obscure the central and simple notion that the primary purpose of a program approach is to derive information for decisions at all levels in all sectors of postsecondary education. The focus is not operational, but planning and management, including financial planning and budgeting. The practical problems of measurement and identification require that the program approach must be kept in proper perspective. A comprehensive program approach is not a practical achievement in this decade, but the fundamental notions of this approach provide insight into institutional dynamics and hence assist both the science and the art of management.

Research in the universities can be a touchy subject in discussions related to funding, particularly if there is little trust between the institutions and the granting agency. Some of the suspicion is based on the imprecise definition and understanding of the research "program". The confusion about what is included in the research program is understandable, given the complexity of the topic. The PCS definitions are sensible and practical and should help answer some of the concerns and provide a widely accepted language. The PCS allows classifications of programs, activities and resources in relation to outcomes. It is not a pattern for funding nor is it based on any particular philosophy of funding. The Research program 2.0 includes those activities intended to produce one or more research outcomes including those supported by institutional or by trust funds. Subprogram 2.1 "Institutes and Research Centers" includes those research activities conducted within the framework of a formal research organization. It is recognized that not all activites in such organizations are part of the Research program. Subprogram 2.2 "Individual or Project Research" includes those research activities normally managed within academic departments. Departmental research carried out as an instructional activity should be classified in the primary program of Instruction and that which is primarily personnel development should appear under 4.8.

The province is not the only or even the major purchaser of research so that funding which supports those activities raises a number of important general issues. Response to these questions must include the appropriate rules in respect of Alberta financial assistance for the range of activities from research performed by professors and students, and funded in part by the federal government or councils, to research performed expressly in support of Alberta research and science policy. Regardless of how these and related issues are resolved, considerations of this sort raise certain technical questions as well. Since, typically, a major component of the cost of research is institutional overhead, including the time of principal investigator, the suitable determination of costs will be required. Calculation of the cost of research is both difficult and controversial.

There is a general unravelling effect of funding on more than one basis. The rationale for funding on the basis of only one primary program may be difficult to sustain if other primary activities are seen as supportive of general Alberta policy in some area. Yet, on the other hand, one could very well accept the present "all other things are equal" sort of argument because of the practical measurement/information problems. These limitations make it difficult to implement an allocation formula which attempts to fund on the basis of outcomes or activities associated with all programs and subprograms and so on down through the PCS hierarchy. In other words, while it is possible to argue the logic of funding on bases beyond instruction, there are many practical, jurisdictional, managerial and technical questions which must be resolved or agreed, before the rationale of limiting or extending the bases may be established.

## J. On the Question of Quality

While many financing techniques take into account the quantitative aspects of institutional resources, activities and outcomes, most exclude explicit consideration of the qualitative aspects as part of the basis of funding. The issue is an important one, which goes to the heart of the problem of system and institutional budgeting and especially our allocation problem.

Let us put the question in as clear a perspective as possible. Higher education is not the only field for which quality must be judged and form part of the basis for funding. Also, the questions of quality should not obscure the fact that most quantitative parameters (weekly student hours, full-time equivalent students) are only proxy for educational measures. Presumably, we feel that WSH is a measure which indicates an amount of "learning" and that full-time equivalent students at a certain level represents an acceptable measure for achievement. The truth is that these are data elements for measures which can be counted and for which there is some general agreement that they represent quantity of activities or outcomes and that they are suitable base factors for funding.

The quality of a program, its activities and outcomes, is like beauty, in large part in the eye of the beholder. If one judges on the basis of practice, there seem to be very few widely accepted criteria of excellence that are applied. In financing techniques which include formulas there are a number of ways that one may attempt to take quality into account:

1) The use of added components to the formula which address the problem of quality by compensating in various degrees for institutional complexity, specifically, recognition that larger graduate research institutions with smaller classes and more expensive faculty and facilities require more resources than smaller less complex institutions. System-wide average costs which serve as the norm do not always reflect expenditure patterns realistically for the capstone institutions. The logic of the complexity factor approach suggests that institutional cost differences reflect program quality - clearly this is not true in general, but may be reasonable in certain circumstances.

2) The use of certain output measures such as success of students in the subsequent institutions or first jobs. Achievement in certain tasks such as graduate record exams, LSAT, etc., may have validity but are difficult to incorporate into the allocation formulas.

3) The use of a non-formula component of funding which could be related to manpower surveys which attempt to evaluate the students' learning for each institution either through reasonably objective outcomes measures or through surveys of employees, graduate schools, and so on.

The whole problem of evaluation of quality is of course, not limited to funding concerns of AAEM. There are numerous examples of ad hoc evaluation processes on campuses over and above the continuous evaluation which is part of the normal academic management process. There is an obvious reluctance to tie these too closely to the funding process for fear that funding considerations would weight too heavily. However, the basic process of evaluation of instruction and other primary programs comes down to informed human judgment supported by comparative, analytical and objective information to the extent feasible and desirable. Thus, when quality concerns become important enough to warrant the cost associated with evaluation for funding discrimination, panels of experts (peers) supported by experienced analysts can provide the necessary input which may be used to determine or influence the formula and non-formula component of the institutional allocation.

## K. Faculty Collective Bargaining

There are a number of factors which may greatly influence financial planning of postsecondary education in Alberta, but for a variety of reasons cannot be taken into account directly in this or any limited project. These include concerns related to the state of the economy, Federal/Provincial arrangements with respect to postsecondary educational cost sharing, changing Canada and Alberta political and social factors. Another such item is faculty collective bargaining. Conceptually, one can appreciate that there are numerous potential mutual impacts of collective bargaining and financial planning. Since the specific circumstances and issues which may influence bargaining at the time of implementation of any plan, are not known, collective bargaining considerations cannot be made specific parameters in a financial plan. Nonetheless, there is the opinion that faculty collective bargaining will be an even more significant factor in planning in the future, than it has been in Alberta postsecondary education. The anticipated end to Anti-Inflation Board guidelines is expected, by some observers, to increase the importance of faculty collective bargaining in influencing institutional and system financial planning. The trends of past negotiations and those in other jurisdictions tend to suggest that as the rate of growth in the student population diminishes, non-monetary items will become an important focus for faculty collective bargaining. Some of these non-monetary items are important policy variables in financial planning as illustrated, for example, in discussion of the elementary model (see Chapter V. E. c). Issues such as average class size and average faculty load, like average faculty salary, are important institutional cost determinants as well as negotiable items in faculty collective bargaining. Faculty collective bargaining may have impacts on financial planning as a result of changing institutional and even system policy on these types of items which have direct and indirect financial and other ramifications.

Just as cost analysis and faculty activity analysis have moved from being "management" tools and techniques, to becoming important vehicles for information necessary in achieving collective agreements, so faculty flow models may become more acceptable, even necessary, in institutional and system management if either financial planning or faculty collective bargaining become more significant aspects of institutional and system decision making. As with the other models, the mutual impact is evidenced by a shared concern in certain topics - in this case items such as faculty retirement and redundancy, tenure policy, hiring policy and procedures, promotions criteria and quotas. Again these are negotiable items for collective bargaining as well as policy variables used in financial planning applications of faculty flow models.

Alberta faculty associations have not yet emphasized faculty professional development to the extent that faculty unions have in other jurisdictions. One may anticipate that in "stable" times this may be a point of increased concern to faculty associations and one which has clear financial consequences. If there are already important centralizing tendencies in the province, and especially in stable periods, then analytical system-wide financial planning may influence the evolution of collective bargaining. It may, for example, add impetus to the trend seen in other jurisdictions towards province-wide faculty collective bargaining.

While it does not seem productive to attempt to deal with the impacts of collective bargaining separately or specifically at this stage in the development of a financial plan, it would be folly to assume that implementation of any financial plan may be undertaken in Alberta in the next few years without faculty collective bargaining considerations. Therefore, to assist those who may implement a plan, Appendix Q provides a summary analysis of the mutual impacts of faculty collective bargaining and financial planning in the Alberta context. It looks at the mutual impacts in three main areas: Legal issues, decision-making issues, and economic issues. Appendix C gives current practice with respect to collective bargaining in other jurisdictions in Canada, in the context of other policies, practices and organizations in those jurisdictions.

## L. A Midcourse Focussing of Alternatives

A practical financial plan for a complex system of higher education will likely be an amalgam in which financing techniques are mixed in various proportions to meet the special needs of the education system, time and circumstance. Yet as the project proceeded, it was necessary to make judgments on which branch of the tree should be given priority attention and which should be considered as unlikely candidates as the *principal* financing technique of a practical plan. We came to the conclusion about midway through the project that the institution-as-recipient and the formula branches had the highest priority. The following sections provide the rationale for the judgment not to consider further student-as-recipient and non-formula based financing techniques as principal characteristics of practical financial plans.

a. Students as Recipients

Financing techniques based on students as recipients usually involve two limiting assumptions: (1) that only instructional costs will be borne by students and that research and public service costs will be dealt with separately and by public funding, and (2) that fee increases must be accompanied by changes in provisions for loans and grants to students in order to preserve equitable access for qualified students.

Many difficulties arise in the practical application of the view which would emphasize students as recipients. There are problems in separating the instruction costs that students should bear from the costs of research and public service. If students are required to bear the total cost, or a significantly large portion of the cost of instruction, then they may buy less education than would seem to be in their own interest. Also, the elasticity of demand differs for various income classes, leaving the policy of equal access open to question. However, there is a growing awareness that costs other than tuition are the major economic barrier to students wishing to attend advanced institutions.[1] There are significant problems in identifying and measuring the benefits received by students and by society[1] so that the instruction costs (if they could be separated) might be borne in proportion. There are additional problems in identifying costs associated with various student academic programs in order to adjust tuition fees by program according to cost.

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[1] Christopher Jencks and David Riesman, The Academic Revolution (Garden City, New York: Doubleday & Company, 1968); David A. A. Stager and John Gero, Financing Post-Secondary Education in Canada, Study No. 7, Provincial Income Transfers Through Federal Government Involvement in the Financing of Post-Secondary Education (Toronto: The Council of Ministers of Education of Canada, 1971); Robert M. Pike, Who Doesn't Get to University - and Why (Ottawa: The Runge Press Limited, 1970).

Proponents of student financing suggest that institutional financing has not produced the most desirable results in the development of postsecondary education and that a return to market methods of allocating resources to institutions may be preferable. However, the marketplace/efficiency arguments do not appear valid in Alberta, since geography more than anything limits students in their choice of institutions. Also, education has traditionally been considered a public good in Canada. Marketplace mechanisms, like voucher systems, are useful primarily for the private alternative. Consumer sovereignty does not seem to have a place in higher education in Canada since we no longer have the private alternative.

Market mechanisms are usually promoted on the basis of rationalization of academic programs among urban centres. Alberta has a variety of alternatives for students. It is not necessary to shift to the students-as-recipients financing technique in order to provide students a choice. In addition, while complex institutions of advanced education must be responsive to changes in student preferences, they should not be forced into the uneconomic practice of accommodating each new fad.

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[1] Oscar Lenning, The Benefits Crisis in Higher Education, ERIC Higher Education Research Report No. 1 (Washington, D.C.: American Association for Higher Education, 1974); Opinions vary significantly on whether foregone income and parental support should be included.

Many suggest that institutional financing has created inequities favoring the middle class. Windfall gains and losses have accrued as a result of government intervention. Windfall gains accrue to those students or their families who otherwise would have attended postsecondary institutions without any government subsidy, i.e., the subsidy or operating grant to institutions represents a flat transfer from general tax revenues to a specific interest group. In addition, similar to many publicly-supported services, some of the public subsidy to higher education entails a windfall loss to those taxpayers who share the burden of the subsidy but have not participated in higher education. Students' financing of their higher education is suggested as a remedy in provincial commission studies, such as that of the Wright Report[1] and the Graham Royal Commission[2], and inter-provincial enquiries such as the Peitchinis Report[3], prepared for the Council of Ministers of Education, Canada. These proposals would shift more of the cost to students and increase student financial assistance but raise controversial issues. There is a divergence of opinion between those who think that equitable financing arrangements should recognize parental income and those who stress equity in treatment of students and their peers who do not participate in education. Recognition of the parental income status becomes increasingly anomalous when one considers that most postsecondary students have reached the age of majority. Another issue is that the use of the tax system to finance postsecondary education appears to force taxpayers with relatively low income to share in the cost of an activity yielding its greatest benefits primarily to those already having the highest potential income. Hartle[1] argues that higher taxes paid by working graduates do *not* have discounted values sufficient to offset the values of the subsidies they received as students. However, Richard W. Judy[2] shows that there are no significant differences between proportion of revenue supplied and proportion of benefits reverting to various income classes. Hence institutional financing does not result in inequities. Therefore it seems unnecessary to institute students-as-recipients as a financing technique on these grounds.

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[1] Report of the Commission on Post-Secondary Education in Ontario, The Learning Society, by Douglas T. Wright, chairman (Toronto, Ontario: Ministry of Government Services, 1972).

[2] Report of the Royal Commission on Education, Public Service and Provincial/Municipal Relations, Vol. 3, Education, Chapters 61-65 (Halifax, Nova Scotia: Queen's Printer, 1974).

[3] Stephen G. Peitchinis, Financing Post-Secondary Education in Canada, Commissioned by the Council of Ministers of Education (Toronto: July 1971).

Controversy also arises regarding expected adverse effects on the size and socioeconomic composition of the student body resulting from shifting more educational costs to students without an adequate student assistance program. Even if the private benefits from higher education are deemed substantial, low income students are said to be "risk-adverse" and "debt-superstitious". It is because of these arguments that aid programs including grants which are means-tested and/or contingency loans are suggested because they are not subject to the objection re parental incomes. Nevertheless, contingency loans (such as Yale[3]) are not without problems. It could be that low income students are so risk-adverse that they will not undertake loans even on the contingency principle. It could also be that increasing fees would not substantially shift the number or distribution of students; hence, the costs of education would be shifted to those who participate in higher education. However, unless it could be proven that increasing fees would not have significant adverse effects on the size and socioeconomic composition of the student body, advocates of plans to shift the burden of cost to students are suggesting a policy change with significant risks.

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[1] D. G. Hartle, "Financing of Higher Education in the 70's: A Viewpoint from Ottawa", STOA, The Canadian Journal of Higher Education, Vol. 3, No. 2, (1973) pp. 113-140.

[2] Richard W. Judy, On the Income Redistribution Effects of Public Aid to Higher Education in Canada (Toronto: University of Toronto, 1969).

[3] See Appendix R, "Student Assistance Programs".

Oliver[1] suggests that proposals to shift postsecondary finance to greater reliance on tuition income is based on the questionable view of education as an investment activity. To return to market forces to determine participation in postsecondary education denies public benefits of education. In Oliver's opinion, returning to high tuition levels would retard gains in improving access, and would reinforce existing class biases. He also argues that increased loan and bursary programs are not effective remedies to barriers imposed by high tuition fees. Much of the effectiveness of student aid programs is related to the criteria of awards, procedures for assessments, and administration. If the awards are small, assessments stringent, and administration slow to inform students of whether they qualify, the programs would have little positive effect. Oliver argues further that the goal of greater equity should be advanced by resource allocation mechanisms, e.g., tax reform based on "ability to pay" criteria, and that governments should not attempt piecemeal measures when the effects of access are uncertain.

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[1] Jan Morgan, ed., Post-Secondary Education in Manitoba, Report of the Task Force on Post-Secondary Education in Manitoba (n.d.).

It is important to note that these arguments are related to student based financing techniques as the dominant financing technique. Nothing said is meant to imply that there is not: (1) a need for student assistance programs; (2) need for further information on accessibility of education service to all Albertans; and (3) need for further information on characteristics of students. Nevertheless, the arguments suggesting that students-as-recipients should be the dominant financing technique are not convincing enough in view of the anticipated risks associated with shifting away from institutions as the main recipients. Therefore, the project will emphasize study on financial plan financing techniques that have institutions as the recipient.

b. Non-Formula-As-Means

The following analysis of the existing Alberta university formula and the public college non-formula financing techniqueswas given in *Planning Paper One* to provide background for the discussion called for in the first paper on the four directions suggested as the remaining alternatives at that point. Further consideration and the discussion of these lead to the conclusion to give higher priority for further study of formula financing techniques.

1. Universities

i. Strengths --

*Familiarity* - The Alberta university formula has been the principal financing technique used in Alberta advanced education for the allocation of resources among the universities since there has been more than one university in Alberta.

*Simplicity* - The formula is easy to explain and to understand, while, at the same time, appearing to be reasonable and sufficiently comprehensive to most observers. As well as being conceptually simple, calculations are straightforward and require a data base which is easy for institutions to gather, maintain and verify. The two characteristics, familiarity and simplicity, contribute a good deal to the widespread acceptability of the formula.

*Impartiality* - Notwithstanding any weakness of the formula, the funder cannot be accused of favoritism or bias in the distribution of public funds if the formula is seen to be applied objectively.

*Flexibility* - The formula is sufficiently flexible so that certain developments and changes can be accommodated without the need to create a new system. For example, the introduction of new programs, certain changes in government policy in respect of existing programs, and changes in the virtual costs of programs may be accommodated with the existing formula.

The flexibility of the formula is not only an inherent property, but relates as well to its application. For example, the formula may be applied so as to take into account the fact that institutional funding levels should not be varied sharply from year to year, but so as to allow time for adjustment to take place effectively in complex institutions. This may be achieved (in part) by using planned figures for student enrolment distribution and magnitudes rather than actual or projected numbers. The formula is not dependent upon, and may be applied regardless of, the total sum of operating funds voted to AAEM. From another perspective, the number of enrolment units generated or anticipated by institutions singly and collectively is one reasonable indication of the resource requirements of the institutions and the system as a whole. Yet, the formula does not require a rigid relationship between the total number of enrolment units and total dollars.

*Accommodating to Funder* - The formula has been capable of accommodating varying objectives and policies of the Alberta Universities Commission and more recently AAEM. Perhaps one of the convincing measures of the ability of the formula to accommodate the needs of the funder is that the overwhelming percentage of funds transferred to the universities has been transferred via the mechanism of the formula. This has been accomplished during periods of very rapid growth in student numbers and new programs, as well as through periods of less rapid growth and changing government and societal needs and attitudes.

*Non-Directive* - The formula is not a control mechanism in respect of institutional expenditures, nor is it a basis for the internal allocation or budgeting of institutional resources. The formula is compatible with the notion of a system of autonomous institutions, subsidized by public funds allocated by government in pursuit of public policy. It has not interfered with internal priority setting, planning and management of institutions. The possibility that the formula might be directive is a continuing concern of institutions supported by public funds but traditionally engaged in pursuit of the public good, as viewed from their own perspective rather than that of the government in power. Nonetheless, there is no evidence that the formula has become an unwanted template for spending patterns within any institution.

*Exclusive of Inflation* - The formula does not address the problem of inflation. Inflation must be taken into account in the allocation of the total operating funds voted to AAEM and allocated by AAEM through the formula to the institutions. The differing rates of inflation of different services and commodities used in differing proportions by the institutions are assumed to have a net nil effect on the relative needs of the institution as determined by the formula.

*Conciliatory* - The formula conciliates the concern of institutions that improvement in internal effectiveness and efficiency will lead to a corresponding reduction in funding and not to an opportunity for improvement in quantity and quality of services. Hence, the formula may not be perceived as a disincentive for effective institutional operation.

*Accountability* - Since the formula does not control, direct or set out policy in respect of institutional expenditures, it is not a mechanism of accountability. Nonetheless, the formula is an explicit statement of government policy with respect to resource allocation in terms of student academic programs. Thus, given its familiarity and simplicity, it tends to strengthen understanding and creditability of advanced education management and therefore facilitates accountability. Also, it is characteristic of formulas to give an appearance of objectivity and precision, which engenders trust and hence again promotes accountability.

*Information Systems* - The formula is workable with existing institutional information systems and is capable of evolving with these systems. Also, it is in the nature of formulas and models to promote and assist the orderly and logical evolution of institutional information systems for planning and management.

*Based on Instruction* - The formula allocates funds on the basis of the most obvious, familiar and easily identifiable outcomes proxy. This outcomes proxy of the instruction program is a student in an academic program. These formula funds also support research and public service activities which are the other primary programs inherent to universities. However, this funding has not been on the basis of measured outcomes or activities of these programs. The implicit assumption is that the universities are expected to meet their responsibilities as universities under the law and in the accepted tradition of Canadian universities. There is concern that formulas will evolve which will allocate provincial monies on a basis which attempts to separate academic departmental research from instruction. This is not the case with the Alberta university formula.

*Based on Virtual Costs* - Since the weights in the formula are not based on an advanced education, system-wide, institutional program outcomes study or program cost study, the formula should not support or encourage the widespread misconception that formula weights reflect institutional program outcomes or costs. The formula does not imply that the weights assigned to student academic programs represent actual unit costs of institutional programs. The weights indicate unit virtual program costs (VPC) as described in Section I. The VPC to Alberta is defined by the program weight in the formula. The VPC is translated into dollar amounts of allocation by the dollar value of an enrolment unit.

The virtual cost is not the actual cost of the program on any given campus. Moreover, VPC is not the system-wide average cost of such programs offered on all campuses, since not all programs and outcomes are explicitly "weighted" by the formula.

*Program Importance* - The formula does not imply the relative importance of student academic programs by the weights assigned to each program.

ii. Weaknesses --

*Weights* - It is possible, even probable, to misunderstand the meaning of the student academic program weights assigned by the formula.

While, in the virtual institution, the weight may imply virtual program cost or program priority, the weight is not necessarily related to program cost or importance at any given institution or in the real advanced education system.

*Logic* - Formula revenue is provided to the institutions on the basis of student academic program categories. Institutional expenditures, on the other hand, are made by academic departments, which are the activity centres. These two are related primarily through the ICLM, which is peculiar to each institution. Therefore, the formula does not provide a direct means of funding instructional activities. If this is, or should become, the intention of AAEM, then it must be construed as a weakness. If not, since the ICLM of a virtual university is undefinable, this lack of coincidence of a system-wide funding pattern and the institutional spending pattern undermines the logical basis of the formula.

*Instability* - Since the formula weights are guesses and not the result of thorough analysis, the resulting formula may lead to unstable or undesirable funding patterns. Without continuing analysis and critical examination, the allocations to the institutions may move away from the desirable equity.

*Unnecessary Proliferation* - The formula may encourage unnecessary proliferation of programs and institutional activities as a means to gain higher institutional or system-wide funding levels. This is a tendency associated with student "driven" formulas and ordinarily would be considered a weakness. However, other institutional and Alberta advanced education policies and procedures seem to counterbalance any undesirable effects of this tendency in the application of the current formula.

## 2. Public Colleges

### i. Strengths --

*Accommodating* - The college system has grown rapidly with individual colleges expanding at different rates and with different priorities. The present system has been capable of accommodating special objectives and priorities which the Alberta Colleges Commission and AAEM set out for individual colleges.

*Accountability* - Since individual institutional expenditures are annually monitored from both the policy and fiscal control point of view, the present system provides, in principle, a mechanism of accountability.

*Flexibility* - Developments and changes or additions to activities can be accommodated. Requests for funds for additional programs or activities may be submitted to AAEM within the present budgeting system. Also, different rates of inflation of different services and commodities used in differing proportion by the institutions may be incorporated into the budget allocation.

*Familiarity* - All institutions process the most commonly accepted information in standardized formats. Information and management systems of the institutions have been developed to coincide with the basic requirements of existing financing methods.

*Credibility* - The method heavily relies on constant negotiation between the institutions and the funder. Therefore, it should strengthen communication and credibility with Alberta Treasury.

*Stability* - Tends to be characteristic of incremental approaches.

ii. Weaknesses --

*Lack of Objectivity* - The apparent impartiality provided by a formula is lacking and hence AAEM is left open to accusations of favoritism and inconsistency.

*Inefficiency* - Institutional efficiency is not promoted because of the incremental nature of the present system. Unnecessary proliferation of programs and institutional activities as a means to gain higher funding levels is encouraged because any additional activity can be used to negotiate new funding.

*Autonomy* - The level of detail at which AAEM sets policies and controls resource allocation may tend to erode institutional autonomy. Problems related to inadequate funding may be passed on to the funder even when it would be desirable and possible for the institution to solve the problem.

*Consistency* - Funding policies and constraints set by AAEM are not readily accepted by institutions because additional funding has been a matter for negotiation within the budget year.

During the ensuing discussion and study on this analysis of strengths and weaknesses, it became evident that there was a preference for a financial plan that placed increased emphasis on formula techniques and approaches. It was felt that regardless of the financial plan proposed, staff work would be most productive on financing techniques which use formulas as the principal means.

The theoretical framework developed by the project and presented in Chapters III and IV suggests that an increased emphasis on formulas gives the most potential for the evolution of those financing techniques offering completely new opportunities. An increased emphasis on analytical methods offers the possibility for improved information for financial planning and all system and institutional planning and management. Thus, the formula alternative has been pursued vigorously because of its positive attributes, its potential for gradual as well as substantial change from existing methods and its characteristic as a compatible component of more extensive planning and management systems. In other words, the emphasis on studying the formula based alternatives has been made on the basis of positive judgments with respect to formula techniques rather than specific negative features of non-formula financing techniques. Chapter VI provides an extensive evaluation of the proposed financing technique against the dozens of project guidelines and other criteria which an acceptable financial plan must meet. The vindication of the judgment to emphasize project staff work on the formula alternatives is perhaps best left to that evaluation.

## V. ANALYSIS OF SPECIFIC ALTERNATIVES

### A. Introduction

The purpose of this Chapter is to describe and to illustrate through the test application of the Alberta data base certain formula-based financial plans used in other jurisdictions. The results of this initial analysis lead to observations about both the financing technique and the Alberta data base. In turn, these observations suggest alternative syntheses of formulas which are evaluated from the perspective of their potential Alberta applications.

The methodology of the project ('the linear hourglass') would imply that one should study the widest variety of alternatives and hence look at the largest number of jurisdictions. Fortunately, on the basis of the theoretical framework developed in the earlier chapters, we are confident that the subject matter has sufficient coherence that an analytical rather than a purely descriptive or anecdotal approach is possible and beneficial in the examination of the jurisdictions. Using the classification scheme described in Chapter IV, it is possible to group financing techniques in a way that allows one to examine only a few representative sets. The classification scheme assumes that the general characteristics of all those of interest will be included and can be evaluated on some reasonably objective bases that are not dependent on details of the home jurisdiction implementation.

In the past few years there have been a number of U.S. surveys of financing techniques and we used this material to provide the first screening of the States which will be examined more closely.[1] For Canadian jurisdictions we gathered (and present here and in Appendix C) more detailed information because the Canadian context, experience and trends are part of the educational environment for Alberta universities and colleges. Nonetheless, we have tried to present a balanced view only from the perspective of financial planning and only reported (at least, in depth) those aspects which seem important from our Alberta allocation problem now and in the future.

The selection of those financing techniques to be studied was based on the extent of formula financing in the jurisdiction. We concentrated on those jurisdictions which budget or allocate the preponderance of funds by formula. The reason for this selection is that the documentation of the formulas and supporting data bases, and the experience of individuals in working with the formulas tends to be more acute and complete if the formula is the major feature of the financing technique. While the different governmental or agency organizations, traditions and circumstances make it difficult for the outside observer to appreciate the full rationale for various formula applications, fortunately, these need not obscure the logic of a formula.

In keeping with this systematic approach, the survey of the jurisdictions is not general nor multipurposed. A limited number of carefully selected jurisdictions are studied, not to find out what they do and how it works there, but rather, to find out if what they do gives any insight into what might be valuable to financial planning in Alberta. No extensive evaluations of how a financing technique works in its home jurisdiction are attempted. Since it seems doubtful that the critical and particular details (political, economic, educational, social, technical) would exist now or in the future in Alberta, such time consuming evaluations are not likely to lead to practical alternatives. Perhaps, the best argument against extensive surveys is that within a jurisiction, the systems, procedures, financing techniques and organizations related to postsecondary education change rapidly. Consequently, project research concentrates on the technical aspects of financial planning in other jurisdictions with as little involvement in the application context aspects as possible.

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[1] The project intent in this respect, was discussed with Lyman Glenny, and others at the University of California, Berekely, as well as with Francis Gross in Tennessee. These discussions helped in the selection of the U.S. jurisdictions which are studied.

The descriptions and illustrations given in this Chapter take a number of forms. Some jurisdictions use formula financing techniques which can be tested using the Alberta data base and, where possible, test results and supporting calculations are shown. The differences between test distribution results and historical Alberta distributions are important starting points for an analysis which leads to evaluation against project guidelines and criteria, as well as the Alberta context and data base. Beyond the information that one obtains from comparisons of actual with simulated distributions, financial plans used in certain jurisdictions illustrate peculiarities in formula applications that may be modules of practical alternatives. On the basis of tests and other observations made on financing techniques in all surveyed jurisdictions, various alternatives in three categories are developed and tested with the Alberta data base. The evaluation of the surveyed and deduced examples provide technical input and practical background for the financial plan proposals made in the next Chapter.

a. Steps in the Application with Alberta Data

In jurisdictions where application with the Alberta data base is possible, the following steps are necessary:

1) Compare data requirements of the financing technique with available Alberta data

2) Select components of the financing technique that can be tested with available data

3) Develop a methodology for the distribution of grants which reflects the intent of the formula as applied in the home jurisdiction. Such adaptations may require substitution for certain data elements used in the formula by the most appropriate in the Alberta data base

4) Apply the methodology to simulate the distribution of grants

5) Array the derived grant distribution with the actual (historical) distribution of grants to the institutions included in the application test.

Comparison of the derived grant distribution in a base year with the actual grants, is the best practical comparison of the financing technique with existing methods. The actual grants are those reported at the end of a fiscal year and the parameters and variables used in the derivation of the simulated grant distribution are official statistics as of the appropriate date of record for that year. Differences between actual enrolment size and student mix and those which influenced the budget-year decision would of course yield different grants even if the same technique was used. Thus, since most actual grants are made on the basis of some estimation of budget-year requirements and since these complete circumstances are hard to reconstruct, each comparison whether based on actual year or budget projection data, should be viewed with this circumstance in mind.

### b. Limitations and Constraints of Alberta Data Base in Alternative Applications

Preparation of the data base and evaluation of the data capabilities of colleges and universities began early in the project. *Planning Paper One* (85) describes the desirable characteristics of financial planning information, data capabilities of colleges and universities, and historical data available for analysis of alternative techniques. *Planning Paper Two* presents detailed information about Alberta public colleges and universities, and national postsecondary data, in order that its usefulness, comparability, limitations and hence its value in support of financial planning and testing alternative financing techniques can be assessed and illustrated. An important element in the decision to select one or another of the alternative financing techniques is the informational support which the institutions can provide. Chapter III, "Available Data Related to Financing Techniques", *Planning Paper Two* (29) contains detailed descriptions and evaluation of the data base grouped into the following categories:

1) Outcomes data
2) Activities data
3) Financial data

In the process of narrowing the alternatives by testing various financing techniques, the data base capability to reflect relationships similar to those applied in surveyed jurisdictions' formulas becomes important. Parameters are selected to be equivalent to or at least adequate to satisfy the jurisdictions' intent in the use of a certain indicator in the formula. For example, student credit hours, the most widely used workload measure in United States jurisdictions, is not available or relevant in the Alberta data base and therefore the indicator has to be replaced with one which is considered representative of workload generated by students in the system. There are two possibilities: Weekly student hours or course enrolees. For the purpose of illustrating formulas from the United States jurisdictions, course enrolees are considered to be closer to the equivalent of student credit hours. A certain number of student credit hours accumulated within certain program regulations qualify the student for a diploma or a degree. Similarly in Alberta, completion of a number of courses according to program regulations, qualifies a student for a degree or certificate.

Other data base limitations in testing various alternative financing techniques are as follows:

1) *System Applications* - Institutions in the sectors, are similar; each is autonomous, and shares primary programs of instruction and public service, even though the levels and proportions of these primary programs within institutions and sectors may vary. A desirable characteristic of a system-wide financing technique is that it be based on data elements, common to all institutions. Common data elements are similar in structure and detail, level of aggregation, and equally suitable for purposes of management within institutions and management from the funder's point of view. However, because of differences in institutional size and organizational characteristics, and in historical development of the information systems for internal management and external funding, the Alberta system data base has few data elements common among the institutions.

The planned project data base extended from 1970-71 to 1974-75. However, public colleges have little or no information from which data could be extracted prior to 1975-76. Therefore, a set of parameters as complete as possible for 1975-76 for public colleges was gathered. The limited information available for earlier historical years prevented the extension of many of the tests of alternative financing techniques to the colleges sector and made it difficult to test alternatives that could be applicable on a system-wide basis.

2) *Lack of Certain Parameters* - This data base deficiency limits the development of comprehensive alternatives for testing purposes most often in the colleges sector and therefore also system-wide. For example, none of the techniques involving productivity ratio formulas could be tested with original college information because of the lack of suitable faculty information in colleges. To overcome such constraints, certain alternatives had to be tested in the colleges sector using norms developed from the university data base. This does not imply any judgment regarding the suitability of such norms, but represents one way of extending certain tests beyond the technical limitations of the data base.

3) *Level of Aggregation* - The available financial data are presented at different levels of aggregation in the institutional financial statements of the two sectors. Universities show net expenses by department, in faculties and schools, and therefore the expenditures can be associated with workload measures in teaching departments. In public colleges the net direct instructional expenses are not disaggregated by discipline or organizational unit and therefore expenses can be associated with workload measures only at an institutional level.

4) *Comparability of Financial Statements* - Lack of comparability of universities' and colleges' financial statements among institutions and sectors makes interpretation of the results of the applications of some formulas difficult.

5) *Quality and Availability of Data for Analysis* - Figure 5.1 provides, in summary form, the data elements which are used throughout the analysis of alternatives, information on the level of detail of the numerical values and on the availability of numerical values for the data elements. The chart does not address the question of quality of the data available in the Alberta data base. The technician interested in the analysis of alternative financing techniques will be hampered because the Alberta data base and the associated systems are deficient in the following:

a) Consistency of definitions of data elements, institution to institution

b) Consistency of the method by which data are collected

c) Consistency at each institution over a period of years in respect of definitions, systems and procedures

d) Accuracy and reproducibility of data

e) The quality of the maintenance of the data base and associated systems

The reason for the situation which gives rise to data base characteristics is briefly discussed in *Planning Paper Two* (17).

### c. Separation of Faculties of Medicine for Test Purposes

The funding of Faculties of Medicine in Alberta is the subject of an independent study headed by Dr. E. G. Sugars.[1] For the purposes of testing and analyzing alternative financing techniques it is useful to have the analytical capacity to exclude or to separate Faculties of Medicine. Procedures and data which allow test separation of the Faculties of Medicine,

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[1] Director, Colleges and Universities, AAEM.

FIGURE 5.1

SUMMARY OF DATA ELEMENTS AVAILABLE

| DATA ELEMENT | 1970-71 | | 1973-74 | | 1974-75 | | 1975-76 | |
|---|---|---|---|---|---|---|---|---|
| | U | C | U | C | U | C | U | C |
| OUTCOMES | | | | | | | | |
| Students | ✓ | I | ✓ | I | ✓ | M | ✓ | ✓ |
| Degrees/Diplomas Certificates | ✓ | X | ✓ | X | ✓ | X | ✓ | X |
| ACTIVITIES | | | | | | | | |
| Weekly Student Hours | ✓* | X* | ✓* | P** | ✓* | P** | ✓* | P |
| Course Enrolees | ✓ | P | ✓ | P | ✓ | P | ✓ | P |
| Section Hours | ✓* | X | ✓* | X | ✓* | X | ✓* | X |
| Section Enrolees | ✓* | X | ✓* | X | ✓* | X | ✓* | X |
| Sections | ✓ | X | ✓ | X | ✓ | X | ✓ | X |
| FTE Academic Staff | ✓ | X | ✓ | X | ✓ | X | ✓ | X |
| FINANCE | | | | | | | | |
| Academic Salaries | ✓ | M | ✓ | M | ✓ | M | ✓ | M |
| Departmental Expenses | ✓ | M | ✓ | M | ✓ | M | ✓ | M |
| Other Expenses | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Grants | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Other Sources of Funds | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| PHYSICAL PLANT | | | | | | | | |
| Gross Square Feet | ✓* | X | ✓* | X | ✓* | X | ✓* | X |

| | | |
|---|---|---|
| LEGEND: | U | Universities Sector |
| | C | Colleges Sector |
| | X | Not available |
| | ✓ | Available/maintained at sufficient level of detail |
| | P | Developed by Financial Plan Project from basic files; not otherwise available |
| | M | Available/maintained but only at macro level, i.e., not by discipline |
| | I | Incomplete; not all data available |
| | * | Some institutions only |

provide the opportunity to evaluate the financing technique regardless of any government decision with respect to funding Faculties of Medicine.

The project staff has met with Dr. Sugars and discussed the general problem and specific technical issues concerning the application of his work to the separation of Faculties of Medicine for Financial Plan Project test purposes.

The progress report of the Sugars study[1] shows the sources of "explicit operating revenues" and "explicit operating expenditures" relating to the Faculties of Medicine for the fiscal year 1975-76. At The University of Calgary, 55.9% of the Faculty of Medicine expenditures is covered by funds received from AAEM. These AAEM funds include those granted to The University of Calgary as: (1) non-formula monies for Faculty of Medicine expense; (2) monies derived on the basis of the Alberta universities formula for Faculty of Medicine students as well as all students. At The University of Alberta, 51.4% of the Faculty of Medicine expenditures is covered by funds received from AAEM. The University of Alberta does not receive a non-formula grant for Faculty of Medicine expenses. At both universities, AAEM funds along with funds from other sources are allocated to the Faculty of Medicine and other budget units through the internal institutional budgeting process.

### 1. Alternative Test Circumstances

The separation of Faculties of Medicine for the purposes of testing alternative financing techniques raises a number of conceptual and data problems. It is difficult to discuss components of a complex institution as if these could be "separated" even for analytical purposes. We mean that the unit removed is modelled or described by a few parameters and appropriate amounts of these parameters (weekly student hours, course enrolees, professors, dollars) are said to be separated. We acknowledge the limitations of these assumptions but given the work of Dr. Sugars in this area and the need to provide sensible options with respect to financing techniques, certain analytical liberties may have been taken for purposes of our tests.

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[1] Edmund G. Sugars, "Medical Education Financial Study - Progress Report" (Calgary, Alberta, 30 June 1976).

The alternative financing techniques tested with the Alberta data base include outcomes formulas and activities formulas. An outcomes formula test which excludes a faculty, excludes students registered in the faculty and AAEM funds expended by the faculty for provision of services to these students. This assumes "all other things are equal" and that faculty students are proxy for outcomes. An activities formula test which excludes a faculty, excludes all AAEM funds expended by the faculty and all faculty activities.

The essential difference in respect of data requirements for these two types of tests is that for the outcomes test one must know those AAEM funds expended by the faculty in the support of outcomes (students) not registered in the Faculty of Medicine. This is the service component of the instruction program under our "all other things are equal" assumption. The University of Alberta Faculty of Medicine contributes instructional activities to students registered in other faculties whereas the organizational structure at The University of Calgary is one in which the Faculty of Medicine does not provide a significant similar service. Thus, the value, in AEEM funds, of this service component at The University of Alberta is required for outcomes formula tests. This number, $1 879 000 is provided by the work of Dr. Sugars for 1975-76.

In some of the tests we have said that the values given by the Sugars study for 1975-76 can be extrapolated as shown in Figure 5.2 by assuming

FIGURE 5.2

TEST ESTIMATES OF EXPENDITURES OF AAEM GRANTS
IN THE FACULTIES OF MEDICINE

| INSTITUTION | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|---|---|---|---|---|
| Activities Side of the ICLM Tests | | | | |
| University of Alberta | 6 504 | 7 288 | 7 881 | 9 591 |
| University of Calgary | 3 419 | 4 468 | 5 100 | 6 245 |
| TOTAL | 9 923 | 11 756 | 12 981 | 15 836 |
| Outcomes Side of the ICLM Tests | | | | |
| University of Alberta | 5 150 | 5 840 | 6 308 | 7 694 |
| University of Calgary | 3 419 | 4 468 | 5 100 | 6 245 |
| TOTAL | 8 569 | 10 308 | 11 408 | 13 939 |

that expenditures in the various categories remain in proportion to faculty explicit operating exenditures.

## B. Surveyed Jurisdictions' Financing Techniques

Financing techniques and associated formulas in the surveyed jurisdictions are categorized by their predominant characteristics in Figure 5.3. The classification is somewhat arbitrary because most financing techniques are a synthesis of components in various categories. Bases for the classification are criteria in four groups:

1) Use of the formula in the budget/allocation process
2) Financing techniques "tree"
3) Algebraic structure of the formula
4) Detail of the formula

The following paragraphs elaborate the classification criteria used in the chart.

### a. Use of the Formula in the Budget/Allocation Process

The formulas that generate a budget request are not necessarily used in the allocation process. The formula used in the budget submission process usually assists a wide range of management and analysis activities, beyond the allocation of funds to institutions. These relate to information provided to funding agencies to support coordination, planning and policy decision making and, depending on the level of agency control of institutions, accountability and credibility. Specifically these analytical activities include:

1) Projection and justification of relative resource requirements through use of guidelines and definitions

2) Justification of the level of funds required

3) Clarification of the presentation of budget information depending on the extent of use of standardized and well-defined budget data for comparative analysis. The degree of standardization of budget data for comparative analysis varies among jurisdictions.

Regardless of the use of the financing technique in the jurisdiction, it may provide insight into desirable and practical components which have application to our Alberta allocation problem.

### b. The Financing Techniques "Tree"

The "Financing Techniques Diagram" provides six additional characteristics which allow further categorization of financing techniques in the surveyed jurisdictions. These features are discussed in Chapter IV. C.

### c. The Algebraic Structure of the Formula

Three basic algebraic structures described in Chapter IV. D. are used in the classification of formulas in surveyed jurisdictions. These are; the rate formula, the category formula and the productivity ratio formula. Many financing techniques encompass more than one algebraic structure in the formula component.

### d. Classification According to Detail

The extent of detail or the extent to which the formula is sensitive to certain factors is also part of the taxonomy for surveyed jurisdictions. The use of expenditure categories and the basis on which these categories are determined are aspects of the classification. Expenditure categories can be differentiated based on program classification or organizational unit expense categories. These expenditure categories are listed and defined as follows[1]:

1) *Instruction and Departmental Research* - This category includes compensation for academic administration, faculty members, supporting staff and clerical employees; instruction and laboratory expenses; travel; office supplies and equipment; faculty enrichment and recruiting; and other expenses for departments, colleges and schools for instruction and unsponsored research.

2) *Organized Activities Related to Instruction* - This category includes all expenditures for activities organized and operated in connection with the instructional departments and conducted primarily to give

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[1] Francis M. Gross, "A Comparative Analysis of the Existing Budget Formulas Used for Justifying Budget Requests or Allocating Funds for the Operating Expenses of State-supported Colleges and Universities", A Dissertation Summary, The University of Tennessee, December 1973.

## Figure 5.3

## CLASSIFICATION OF FINANCING TECHNIQUES IN SURVEYED JURISDICTIONS

|  | MISSISSIPPI[a] | TENNESSEE | TEXAS | OHIO | OKLAHOMA | FLORIDA[a] | WASHINGTON | OREGON PRESENT | OREGON PROPOSED | COLORADO | ALBERTA[a] | ONTARIO[b] | QUEBEC[c] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| USE |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Budget Request | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |  | ✓ |
| Allocation | ✓ | ✓ |  | ✓ |  |  |  | ✓ | ✓ |  | ✓ | ✓ |  |
| TREE (INSTITUTIONAL GENERAL) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Zero-based | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Incremental |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Formula | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |  | ✓ | ✓ |  | ✓ | ✓ | ✓ |
| Non-Formula |  |  |  |  |  |  | ✓ |  |  | ✓ |  |  |  |
| Activities | ✓ | ✓ | ✓ |  | ✓ | ✓ | ✓ |  | ✓ | ✓ |  | ✓ | ✓ |
| Outcomes |  |  |  | ✓ |  |  |  | ✓ |  |  | ✓ |  |  |
| ALGEBRAIC STRUCTURE |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rate Formula | ✓ | ✓ | ✓ | ✓ | ✓ |  |  | ✓ | ✓ |  | ✓ |  | ✓ |
| Productivity Ratio Formula |  |  |  |  |  | ✓ | ✓ |  | ✓ | ✓ |  |  |  |
| Category Formula | ✓ | ✓ |  |  | ✓ |  |  |  | ✓ |  |  | ✓ |  |
| DETAIL |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Expense Category | ✓ |  |  |  |  |  |  | ✓ |  |  |  | ✓ | ✓ |
| Program Category |  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |  | ✓ | ✓ |  |  |  |
| Discipline | ✓ | ✓ | ✓ |  | ✓ | ✓ |  |  | ✓ | ✓ |  |  |  |
| Course Level | ✓ | ✓ | ✓ |  | ✓ | ✓ | ✓ |  | ✓ | ✓ |  |  |  |
| Student Program |  |  |  | ✓ |  |  |  |  |  |  | ✓ |  |  |
| Student Level |  |  |  | ✓ |  |  |  | ✓ |  |  | ✓ |  |  |

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[a] Universities.

[b] Colleges of Applied Arts & Technology.

[c] Collèges D'Enseignement Général et Professionnel.

professional training to students, such as agriculture college creameries and demonstration schools for teacher education.

3) *Libraries* - This category includes the expenses for all separately organized libraries, both general and departmental, consisting of expenditures, salaries, wages and other operating expenses such as costs of procuring and maintaining the collections.

4) *General Administration and General Expenses* - This category includes all expenditures for the general executive and administrative offices which serve the institution as a whole, as well as other expenditures of a general character not related to any specific division of the institution which is budgeted separately.

5) *Student Services* - This category includes all expenditures for administering undergraduate and graduate admission activities, processing and maintenance of student records and reports, student registration, counselling and placement.

6) *Organized Research* - This category includes all expenditures for research projects which are organized, budgeted, or financed separately from the instructional departments.

Differentiation among disciplines, course levels, student programs and student levels is indicative of the extent to which the formula is sensitive to detail.

## C. Description of Surveyed Jurisdictions

The survey of financing techniques encompasses the following twelve jurisdictions: Mississippi Universities, Tennessee, Texas, Ohio, Oklahoma, Florida Universities, Washington, Oregon, Colorado, Alberta Universities, Ontario CAATS, and the Cegeps in Quebec. The following is a detailed description of financing techniques used in surveyed jurisdictions which are thought to be representative for illustrating types in our general classification.

a. Mississippi Universities

Appropriation of State funds to the eight universities in Mississippi is done on two levels:

1) The Commission of Budgeting and Accounting (CBA) of the legislature with a staff of six[1], two of whom are responsible for approving global sector operating budgets for higher education

2) The Mississippi Board of Trustees of State Institutions of Higher Learning (trustees) with a staff of four[2] professionals, two of whom are responsible for revising institutional budget requests and allocating institutional operating budgets. The 1976-77 annual budget submitted by the trustees to the CBA was around $80 million.

1. Description of the Financing Technique[3]

The financing technique can be classified as predominantly zero-based formula financing, with the instructional base calculated on the activities side of the ICLM using a rate formula method.

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[1] Lyman A. Glenny, et al, State Budgeting for Higher Education: Data Digest (Berkeley, California: University of California, 1975).

[2] Ibid.

[3] All information for the survey of the funding of Mississippi Universities was obtained from the Board of Trustees of State Institutions of Higher Learning. Allocation of Funds for 1976-77, and a telephone conversation with Dr. Charlie Coffman, Mississippi Board of Trustees of State Institutions of Higher Learning, 27 May 1976.

The financing technique generates a budget request in three steps. First, the rate per base factor unit (instructional dollars per student credit hour) is determined. Second, the instructional base is calculated as the product of the rate per base factor and the projected (budget year) student credit hours and, finally, the total budget is compiled.

1) *Determination of Rate per Base Factor Unit* - For each institution, average costs of student credit hours by level and department are calculated for the base year as follows:

a) The total net expense for each academic department as found in institutional financial statements is assigned to various levels based on the number of section hours (the reference material supplied by Mississippi mentions classes) taught at each level. One of the basic assumptions is that the cost of teaching a class is not influenced by the level of instruction. Graduate classes can be taught by instructors and introductory courses by full professors, and vice versa. Hours per class do not vary significantly in different levels.

b) The total number of student credit hours by level is determined.

c) The amount of teaching department money assigned to each instructional level divided by student credit hours in each level gives the cost per student credit hour for each department and level at each university. The cost of student credit hours is assumed to be different in each level mainly because of the various numbers of student credit hours produced per class. Larger classes predominantly taught in lower levels produce larger numbers of student credit hours per section hour (class).

d) The average cost per student credit hour is aggregated for the following three groups of institutions by department and level (rates):

Institutional Group I - grants degrees up to doctoral level

Institutional Group II - grants degrees up to masters level

Institutional Group III - grants degrees in undergraduate studies only.

2) *Calculation of Instructional Base* - These average cost factors (that is, the rates per base factor unit) are multiplied by projected student credit hours for the budget year, to calculate the instructional base.

3) *Compilation of Total Budget* - The total requirement of funds to operate each university is assumed to be the Educational and General requirements which contain instructional and other expenses, plus formula research requirements. Additional costs under Educational and General requirements are costs of libraries, general administration, operations and maintenance, staff benefits, student services, etc. The Educational and General requirements are calculated as follows:

a) Instructional base = 55% of Educational and General requirements for Group I and Group II institutions

b) Instructional base = 50% of Educational and General requirements for Group III institutions

c) The only other primary program dealt with explicitly by the formula is sponsored research. The formula grant calculated for research at each university is calculated by adding to the instructional base factor the following amounts by group: Group I - 6%; Group II - 3%; and Group III - 2%.

The State of Mississippi does not consider funding all these expenses. Self-generated income of each institution such as student fees, grants, sponsored research, income from sales and services, and any other income such as endowment interest, is subtracted from the total need and only the remainder forms the basis for funding. The State sets, for each group of institutions, different proportions of total expenses to be covered by self-generated income. The following percentages of the total Educational and General requirements are funded for each group of institutions: Group I - 72%; Group II - 74%; and Group III - 76%. These percentages are based on statistical experience plus State policies. The formula in its present form with the percentages as described has been used for three budget years.

As in every formula financing system, there are special programs and cost centres that are funded outside the formula, but they generally do not amount to more than 10% of the total State appropriation.

### 2. Use of the Formula

The formula is used by the Board of Trustees of State Institutions of Higher Learning to gather resource requirements from institutions annually, to present total requirements to the State Legislature (CBA), and to redistribute approved amounts of funds for higher education. The timing of the budget process is similar to that in Alberta. Budgeting starts early in the Fall for the following year. Institutions calculate their needs based on cost factors determined by the Board of Trustees based on averages of the base year. The total requirement is then passed on to the legislature which has until the end of March to decide on the final allocation to the Board of Trustees. Usually it is late in May when the final institutional distribution for the period starting the first of July is known.

If the funds allocated are less than the total requirements indicated (which is often the case), the Board of Trustees uses the proportion of requirements generated by the formula as the basis for the determination of the final distribution to universities.

The formula encourages institutions to practice efficiency measures because any savings achieved accrue as a surplus to institutions. Likewise, any additional revenues can be kept by the institution. Furthermore, universities have a free hand to advertise, set their own fees, solicit funds, and compete as free enterprises until the vital interests of other institutions are threatened. In such cases, the Board of Trustees acts as a control agency.

No major reviews of the formula are presently in the offing. Certain assumptions and the general basis of the formula are monitored by periodic studies. Cost studies and faculty activity analyses are conducted regularly. However, these do not form the regular data base for the financing technique itself. The studies are mainly used to satisfy concerns that come up from time to time - for instance, whether total departmental expenses should be assigned to instructional levels regardless of the faculty rank that generates the cost. Various studies showed that salary levels of professors do not necessarily correlate with the course levels.

Presently there is discussion of the possibility of a change which would eliminate the counting of student hours for students who do not pass the course and, therefore, failure rates would act as a factor reducing the instructional base for formula funding. This raises the possibility that institutions may tend to pass marginal students in order to show lower failure rates. This change would be in connection with new admission standards based on strict aptitude tests. Under new standards it is assumed that failure rates would drop and hence would not be such an important factor in funding. Stricter admissions regulations seem inevitable, since funds for higher education are limited and the only way the institutions can cope with rising costs is to restrict enrolments.

### 3. Application of the Formula with Alberta Data Base

The data base required for the Mississippi formula is available for Alberta universities. The only adjustment necessary for the universities sector application is that of replacing student credit hours with course enrolees as the indicator of workload generated by students in the system. The data base[1] consists of:

1) Course enrolees by level and department for each university
2) Section hours by level and department for each university
3) Total net expense by teaching department in faculties and schools

Departmental expenses are assigned to levels in proportion to section hours taught at each level to the total section hours taught in the department. Departmental expenses divided by the number of course enrolees in each instructional level result in the cost per course enrolee by level and department for each institution.

According to the Mississippi definition, The University of Calgary and The University of Alberta are in Group I, while The University of Lethbridge is in Group III. To obtain group average costs per course enrolee, departmental expenses are accumulated into levels for The University of Alberta and The University of Calgary, and the total of the two universities' costs in each level and department is then divided by the sum of course enrolees in both universities in each level and department. The resulting weighted average costs per course enrolee are used as the rates to multiply the number of course enrolees (base factor unit) in each university's department and level to obtain a total instructional cost. This instructional base is then used to calculate other expenses to obtain the Educational and General requirements.

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[1] The data base is given in *Planning Paper Two: A Data Base* Table 1.4, Table 1.5 and Table 1.7.

Alberta 1974-75 data are tested using three assumptions for calculating the total Educational and General requirements:

1) The instructional base is the same percent of the total Educational and General requirements as stipulated in the Mississippi formula, i.e., 55% for The University of Alberta and The University of Calgary and 50% for The University of Lethbridge.

2) Actual Alberta percentages implicit in financial statements are used to calculate the Educational and General requirements. The difference between Total Net Expense and Net Expense in Faculties and Schools as shown in The University of Alberta and The University of Calgary financial statements is averaged, resulting in the instructional base being 61% of the total Educational and General requirements for Group I institutions. The corresponding University of Lethbridge percentage is 52. A new total requirement is produced using these percentages.

The requirements less revenues produce derived grant distributions which are then compared with the actual in Table 5.1. For detailed calculations and supporting data see Appendix U. Variations 1 and 2 in Table 5.1 illustrate the results of these two assumptions. In both tests The University of Calgary and The University of Lethbridge appear to lose grant money while The University of Alberta gains in the simulated redistribution. Some

## TABLE 5.1

## APPLICATION OF THE MISSISSIPPI UNIVERSITIES FORMULA TO THE UNIVERSITIES SECTOR

## 1974-75

1974-75
($'000)

| | VARIATION 1[a] | | | VARIATION 2[b] | | VARIATION 3[c] | |
|---|---|---|---|---|---|---|---|
| INSTITUTION | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | DERIVED GRANT | PERCENTAGE CHANGE | DERIVED GRANT | PERCENTAGE CHANGE |
| The University of Alberta | 66 672 | 71 491 | + 7.23 | 71 315 | + 6.96 | 70 486 | + 5.72 |
| The University of Calgary | 34 439 | 30 356 | -11.86 | 30 163 | -12.42 | 30 781 | -10.62 |
| The University of Lethbridge | 5 709 | 4 973 | -12.89 | 5 342 | - 6.43 | 5 553 | - 2.73 |
| TOTAL SECTOR | 106 820 | 106 820 | | 106 820 | | 106 820 | |

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[a] Mississippi percentages used for instruction base.

[b] Alberta percentages used for instruction base.

[c] Alberta percentages used for instruction base and Canadian Association of University Business Officers' adjustment included.

of the reasons for this shift in distribution between The University of Alberta and The University of Calgary could be caused by:

a) Real differences in the institutions that are sensitive to the normative rate per base factor, such as economies of scale, differences in the mix of course enrolees in various rate categories, and variations of actual expenditures from those generated by average rates

b) Differences in accounting; The University of Calgary financial statements do not classify all expenses in departments using the same definition as The University of Alberta. For example: Expenditures of computer support to instruction are included in faculties and schools expense at The University of Alberta while at The University of Calgary these remain outside faculties and schools. Thus, an average rate results in an increase in the instructional base as far as The University of Calgary is concerned. To minimize the differences caused by accounting procedures, a third variation is tested:

3) Canadian Association of University Business Officers (CAUBO[1]) data are used to express the relationship between the instructional base and the total Educational and General requirements. Another advantage of CAUBO data for Mississippi formula applications is that sponsored research can be separated and therefore it is included in the Educational and General requirements, and also in the revenue subtracted from the total requirement to obtain the derived grant distribution. Table 5.1, Variation 3 is the result of this calculation. See Appendix U, Table 4 for details.

The Mississippi Universities Formula has not been applied to Alberta Public Colleges because total net expenses by division are not part of the colleges sector data base. Hence, the only possible application of this sort of formula is a distribution of grants on the basis of total course enrolees for each institution. This is shown in *Planning Paper Three*.

## 4. Evaluation of the Formula with Alberta Data Base

The purpose of this section is not to judge the application of the Mississippi formula in Mississippi. Instead, we list strengths and weaknesses of the application of the Mississippi formula within the Alberta context, the constraints of the project guidelines and Alberta data base capabilities.

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[1] Canadian Association of University Business Officers, "Financial Statistics of Universities and Colleges, Parts I and II: Report 3A, Operating Expenditures by Function and by University in Canadian Universities", Data for fiscal years 1971-72 through 1975-76 (years ending 1972, 1973, 1974, 1975, 1976); CAUBO gathers annual financial data using standard definitions and procedures which tend to improve the comparability of institutional financial information.

The formula has the following strengths:

1) The formula is not based on the results of a system-wide program cost study using a faculty activity analysis.

2) The formula utilizes routine information available in financial statements.

3) The formula does not separate departmental research from instruction; however, it deals explicitly with sponsored research.

4) The formula differentiates between institutions offering different level programs, i.e., institutions offering up to doctorate degrees, institutions offering up to masters degrees and institutions offering only undergraduate degrees.

5) The formula accommodates general government policies and is not used as a control mechanism or as a means for internal allocation.

6) The formula, in its present use, conciliates concerns institutions may have that increased efficiency will result in lower funding.

The main concerns or weaknesses could be summed up as follows:

1) Funding depends on the instructional base. The instructional base is calculated using data reported in institutional financial statements, i.e., net expenses of departments in faculties and schools. Data element definitions and the limitations of financial reporting procedures assume more significance, as these items become important in the calculation of grants. Differences in classification of expenses between instruction and other expenses have existed in Alberta since there was more than one university. It is therefore obvious that procedural and definitional work would have to be undertaken to obtain consensus on the appropriateness of data for a formula that uses the Mississippi type of cost index as a rate.

2) Funding depends on information disaggregated to teaching department level. It is often argued that unless the funding agency wanted to control operations of institutions at the teaching department level, costs per course enrolee for each department and level should not be of concern to the funding agency, even if averages of two or more institutions are used. Therefore, if such a formula were to be adopted in Alberta, cost factors for groups of departments or disciplines could be considered by grouping similar departments and using average costs per course enrolee by level.

3) Calculation of the instructional base using departmental data is difficult because it requires projection of departmental course enrolees by level for the budget period. Since information systems which would support the formula do not incorporate the use of an Induced Course Load Matrix, either ratios of workload to projected student numbers in a more aggregate form would have to be used, or a universities sector ICLM produced.

4) The Mississippi formula does not specifically differentiate graduate student supervision when costs are distributed among levels. The use of section hours as the only basis for distribution automatically distributes graduate student supervision related costs to all levels. This may be remedied by attaching additional weights to section hours in graduate levels.

5) Institutional groupings used in the Mississippi Universities Formula relate only to the level of instruction, that is, the degrees offered. Geographical considerations and economies of scale are not handled in the formula.

6) Data needed for calculating the budget year instructional base would be two years old. At the beginning of budget request procedures in institutions, the expenditure data from the year preceding the budget year would not be available. If, however, it is accepted that base year data can be used for two or more years, proper indexing could be applied and multiyear budgeting could be introduced using this type of formula.

Some of these weaknesses and concerns suggest variations to the Mississippi and other similar financing techniques which are illustrated in Section E. a.

## b. Tennessee

Tennessee Higher Education Commission (THEC) is a coordinating agency with authority for budget review, program approval and the allocation of funds. It has a staff of 25, seven of whom are responsible for higher education operating budgets[1]. The executive branch and legislative budget offices of government depend on THEC information for most higher education activities and resource needs. THEC authority extends over 10 four-year colleges and universities and 10 community colleges. Total budget exceeded $195 million in 1976-77. Approximately 85% of institutional budget requests, which are also the basis for allocation, are generated by a comprehensive set of formulas.

### 1. Description of the Financing Technique[2]

The financing technique can be classified as predominantly zero-based formula financing, with the instructional base calculated on the activities side of the ICLM using a rate formula method. The formula generates expenditure requirements for each institution, expected revenues are subtracted from estimated expenditures and the difference represents the request for State appropriations. The derived expenditure requirements are also used as a basis for distribution. The following eleven functional categories are used to classify expenditures:

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[1] Lyman A. Glenny et al, State Budgeting for Higher Education: Data Digest (Berkeley: University of California, 1975).

[2] Sources of Information: Tennessee Higher Education Commission, "Instructions for Preparation of Budget Requests, Tennessee Public Colleges and Universities, Fiscal 1976-77" (Nashville, Tennessee, August 1975); Telephone and personal conversations with Brenda N. Albright, Assistant Director, Tennessee Higher Education Commission.

1) Instruction and departmental research
2) Maintenance and operation of physical plant
3) General expenses
4) Student services
5) Libraries
6) Research
7) Organized educational activities
8) Extension and public services
9) Staff benefits
10) Student aid
11) Remedial education

Each of the above categories represents a given percent of all expenditures.

1) *Instruction and Departmental Research Category* (54%) - Faculty and clerical salaries, office expense and equipment and other instructional department expenses are included. Budget expenditures in this category are calculated by multiplying projected student credit hours by a rate. The system-wide rates are derived by dividing for each discipline and level the total number of dollars spent by the total number of student credit

hours in the same discipline in the base year. There are two optional approaches to level differentiation: The intended level of the course or the level of the program in which the student is enrolled. In cases where the intended level of the course is used, the upper undergraduate level courses which have a large number of graduate students enrolled in them still differentiate the students by level of their program. This is to alleviate institutions' concern that undergraduate rates are not sufficient for student credit hours generated by graduate students, even if they take undergraduate courses.

Formula rates for funding are based on cost studies prepared biannually[1]. There are detailed edit procedures for checking data submitted in institutional cost studies consisting mostly of trend and ratio analysis of various indicators at various levels of aggregation. The resulting cost figures are an integral part of the budget formulas. Adjustments to the value of rates are made only if needed technically, i.e., if costs in any one program are very much out of line with what they are likely to be in the budget year. THEC does not change rates which result from the cost study for the purpose of providing policy input. Generally, stability is not a characteristic of the rates used.

2) *Maintenance and Operation of Physical Plant* (13%) - Budget expenditures such as custodial service, repair service, security, utilities and care of grounds are calculated by multiplying gross academic square feet with a rate. The rate is derived by relating total expenditures in the

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[1] Brenda N. Albright, "An Analysis of Instructional Costs, Fall Quarter 1973", A Report of the Tennessee Higher Education Commission (Nashville, Tennessee, March 1975).

category to the number of square feet in Education and General building in the base year, not including dormitories or other auxiliary space. This derived rate including an inflation factor, is then used for the budget year.

3) *General Expenses* (10%) - Budget expenditures are those of the president's office, the business office, personnel office, catalogues, information and system-wide administration expenses. Certain percentages of all expenditures are applied to institutions in five size ranges. The percentage decreases as the size of the institution increases. System-wide expenses in the general expense category are 0.7% of all budgeted institutional expenses.

4) *Student Services* (5%) - Budget expenditures are calculated by multiplying student head count by a rate. The rate is derived by relating, for the base year, total expenditures in this category to the total head count of students. The rate used for the budget year is the base year rate adjusted for agreed inflation.

5) *Libraries* (6%) - Budget expenditures are calculated by multiplying student credit hours in various levels with rates which differ in various levels.

6) *Research* (1%) - There are two research components: (1) Other separately budgeted research, and (2) Special research allocation. The other separately budgeted research component is applied to all institutions and uses a formula based on historical expenditures and an appropriate inflation factor. The special research allocation component is applied only to universities which generated "sponsored research" income beyond a certain dollar amount. In this research component a fixed amount of money

is divided among the institutions which qualify for the special research grant on the basis of sponsored research income.

*Categories Seven to Eleven* (11%) - These categories are considered non-formula. To derive the requirement for the budget year, an inflation rate is applied to the expenditures of the previous year and proposed changes such as new requirements are taken into account.

### 2. Use of the Formula

The Tennessee Higher Education Commission was created in 1967 for the purpose of studying the use of public funds for higher education and developing policies and formulas for the equitable distribution of funds. The formulas are used to gather financial requirements from institutions annually; to present total requirements to the State legislature; and to redistribute approved amounts of funds for higher education. Institutions submit budget requests October 15 for the fiscal year starting the following July 1. THEC makes recommendations to government December 1. Government approves the global higher education budget around the end of March.

The formula has been updated each year and the revisions reflect the availability of new information or methods. Continued evaluation of the formula is part of the THEC's terms of reference. Revisions are mostly concerned with refinement of cost study methodologies and program category definitions.

### 3. Application of the Formula with Alberta Data Base

The data base used includes cost study information for The University of Alberta and The University of Calgary. The last year for which cost study results are available for both universities is 1972-73 which is taken as the base year for the test purposes. Official student enrolment projections are available for 1973-74, which is therefore used as the budget year. Because of data limitations, the number of program categories is reduced to five from eleven in the Tennessee formula. These are:

1) Instruction
2) Plant and Maintenance
3) Libraries
4) Research
5) Other Expenses

Also, the formula can be tested only for the two universities for which cost data are available.

1) *Instruction* - The Tennessee formula methodology applies to this category with the following exceptions:

a) Instruction excludes departmental research since the Alberta university cost studies do not separate departmental research from sponsored research. Departmental research is therefore included under the research category.

b) Student credit hours are not the data parameter used to calculate the instruction base since they are not available. Instead, course enrolees are used as explained under 'Limitations and Constraints of Data Base'. Since course enrolee projections are not available, student enrolment projections are used as a basis to calculate course enrolees. The basis of the estimate is the ratio of course enrolees in disciplines to full-time students in the base year.

c) Costs attached to graduate supervision in Alberta cost studies are related to graduate level course enrolees.

2) *Plant and Maintenance* - Expenditures per gross square foot are calculated and the rate is applied as in the Tennessee formula.

3) *Library* - Library expenditures are allocated to levels based on instructional expenditures in levels. Rates per course enrolee for the base year are calculated by dividing library expenditures by the number of course enrolees. These rates are applied to the estimate of course enrolees in the budget year.

4) and 5) *Research, Other Expenditures* - The total system-wide expenditures in each category are related to the total system-wide net expenditures as a percentage in the base year. This percentage is held constant for the budget year to determine the total amount in each category. The distribution among the institutions is based on each institution's base year share of the total.

In the Alberta application it was not necessary to calculate revenues, since the purpose of the test is to compare the distribution of grants, based on the formula, with actual grants. Since the test evaluates ways of distributing given grants and does not determine the need for system financial support, rates may be applied to parameters only for the instruction and library categories where projection of the base factor unit (course enrolees) is known. For the other categories, the base year institutional percent distribution of expenditures may be applied. Table 5.2 shows the distribution of Alberta university grants for 1973-74 resulting from the test application as described. Detailed data are shown in Appendix U, Tables 5, 6 and 7.

Because of lack of cost study data which would allow distribution among institutions within each category for The University of Lethbridge and the public colleges, the test is carried out only for the two universities as if they were the whole system.

## TABLE 5.2

## APPLICATION OF THE TENNESSEE FORMULA TO THE UNIVERSITIES SECTOR[a]

1973-74[b]
($'000)

| INSTITUTION | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
|---|---|---|---|
| The University of Alberta | 54 224 | 54 051 | -0.32 |
| The University of Calgary | 27 382 | 27 555 | +0.63 |
| TOTAL | 81 606 | 81 606 | |

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[a] The University of Alberta and The University of Calgary only.

[b] Excludes Faculties of Medicine--see Section A. c.

### 4. Evaluation of the Formula with Alberta Data Base

The purpose of this section is not to judge the application of the Tennessee formula in Tennessee. Instead, we list strengths and weaknesses of the application of the Tennessee formula within the Alberta context, the constraints of the project guidelines and Alberta data base capabilities.

The formula has the following strengths:

1) It is a program category approach to allocation. The instruction and departmental research category is based on a system-wide cost study, which makes it suitable for testing the effect of cost study data on a program rather than organizational (faculties and schools) calculation of instructional base.

2) The methodology of the cost study applied in Tennessee is well described in the THEC literature and is similar in concept to that applied

in Alberta at the two larger universities. Therefore the formula provides an opportunity to utilize the data generated and experience gained in cost studies in Alberta and thus to become familiar with an extensive data base for which there are few other applications.

3) The Tennessee allocation technique is based on a comprehensive yet clear and well defined information system.

4) The technique does not require (but allows) policy input on behalf of the funder.

The main concerns or weaknesses could be summed up as follows:

1) The main weakness is the requirement that the distribution of instructional funds be based on system-wide cost studies. Cost studies are not an integrated part of the information system in Alberta universities or public colleges. Also, in evaluating the resulting distribution of instructional base, it becomes evident that the numbers are very sensitive to the faculty activity analysis which forms the basis of cost assignment to various primary programs.

2) The formulas require an extensive data base in both student load and program costing parameters for which a complete and coordinated system-wide computerized information system is a prerequisite. This is not available for all Alberta universities and the public colleges.

3) The technique does not explicitly take institutional differences into account. For example, beyond discrimination inherent in the program category approach itself, the technique does not allow for economies of scale.

4) The formula application is strictly statistical. It is not geared for any policy input and it does not readily accommodate other aspects of financial, academic or physical planning.

5) A great deal of system-wide information systems development work would have to be undertaken, together with conceptual and definitional work, to achieve consensus in how to apply cost study information as a basis for distribution of funds in Alberta.

### c. Texas Universities and Senior Colleges

The process of budgeting and funding universities in the State of Texas is handled by three State agencies:

1) The Governor's Budget Office with a staff of 10, two of whom are responsible for higher education operating budgets

2) The Legislative Budget Board with a staff of 18, three of whom are responsible for higher education operating budgets

3) The State Higher Education Agency, the Coordinating Board (CB) with a staff of 60. The CB is responsible for development of detailed and comprehensive formulas on which budget requests are built. It does not participate in budget approval processes of the Governor's office or the Ligislature[1]. For the fiscal year 1977 the approved institutional budgets funded by the legislature exceeded $900 million and included allocations to the universities, senior colleges, health units and Texas A and M.

#### 1. Description of the Financing Technique[2]

The financing technique can be classified as zero-based, budget requests submission and approval technique with formulas on the activities side of the ICLM. Institutional budget requests are based on a complicated but well defined series of formulas. In addition, strictly formatted submissions for any non-formula items or requests of changes from formula calculation are required. Approximately 80% to 90% of budget requests are based on formulas. Budget requests in the following functional areas are made as follows:

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[1] Lyman A. Glenny et al, State Budgeting for Higher Education: Data Digest (Berkeley, California: University of California, 1975).

[2] Information for the survey of the funding of Texas universities and senior colleges was obtained from the following sources: Coordinating Board, Texas College and University System: "Definitions of the Elements of Instit-

1) General Administration and Student Services - The formula is based on fall semester student head count, using a rate per base factor method.

2) General Institutional Expense - Requirements are calculated using a rate per base factor method with fall semester credit hours used as the base factor.

3) Staff Benefits - Staff group insurance premiums are not calculated by formula but are based on the actual premium rate.

4) Resident Instruction - Faculty Salaries, Department Operating Expense and Instruction Administration - the faculty salaries and the department operating expense components of this category are calculated with projected student credit hours and rates per base factor based on fall semester student credit hours, differentiated by discipline programs and by the level of student producing the semester student credit hours. There is a minimum dollar amount or percentage of faculty salary guaranteed in the department operating expense component. The instructional administration

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utional Costs for 1977-79 Biennium" (Austin, Texas, January 1976); Coordinating Board, Texas College and University System: "Formulas Designated by Coordinating Board for the Public Senior Colleges and Universities, 1977-79 Biennium" (Austin, Texas, 25 February 1976); Instruction for "Request for Legislative Appropriations for the 1978-79 Biennium (Definitions and Budget Form); Personal and Telephone conversations with Dr. William F. Lasher, Director of Institutional Studies, University of Texas, Austin, Texas.

component is calculated using a series of equations, largely related to faculty salaries and credit hours.

5) Library - The formula is a rate per base factor method, using the total of summer session, fall semester and spring semester credit hours in four categories: Undergraduate, masters and special professional, law, and doctoral. There is also a minimum guaranteed amount for library.

6) Organized Research - The formula includes an "institutional complexity factor" which is multiplied by faculty salaries. The calculation includes a certain percent of sponsored research in the base year and a certain percent of the budget requirement calculated for organized research. The institutional complexity factor (IC) is given by the following equation:

$$IC = \frac{.015U + (.50M_1 + .10M_2 + .25M_3) + (6D_1 + 1D_2 + 3D_3)}{U + M + D}$$

where:

U = Undergraduate Full-time Student Equivalent (FTSE)

M = Masters FTSE

$M_1$ = Masters FTSE in Science and Engineering

$M_2$ = Masters FTSE in Teacher Education

$M_3$ = Masters FTSE in all other programs

D = Doctoral FTSE

$D_1$ = Doctoral FTSE in Science and Engineering

$D_2$ = Doctoral FTSE in Teacher Education

$D_3$ = Doctoral FTSE in all other programs

Full-time equivalent students are derived by dividing the base period semester credit hours by a certain number.

7) Extension of Public Service: Community Service and Continuing Education - there are no formulas applied for budget requests.

8) Physical Plant Operation and Maintenance: Physical Plant and General Services, Building Maintenance Custodial Services, Grounds Maintenance - Physical Plant and General Services requirements are calculated using formulas that include average salaries, full-time student equivalent, full-time staff equivalent and building replacement costs. Building maintenance requirements are based on building replacement costs. Custodial services requirements are based on gross area of education, general and service buildings. Grounds maintenance requirements are dependent on hourly wages on maintenance staff, on lineal feet of perimeter of all campus buildings and on total number of acres of lawns and other regularly maintained areas.

Requests for non-formula items are submitted by the governing board of the institutions and are supported with detailed schedules and information.

2. Use of the Financing Technique

The system of budgeting is biennial. Institutions submit requests for legislative appropriation to the Legislative Budget Board on July 1, for the following two years. These requests contain preliminary data for the current year. On October 15, requests for the same biennium containing final data for the current year are submitted. The fiscal year starts September 1.

The allocation of funds to Texas universities and senior colleges is not based on the formulas used to calculate 80% to 90% of the institutional budget requests. The information contained in budget requests is used as a basis for funding decisions, however, funding is not necessarily a function of the budget requirements calculated based on the formulas. Actual funding is done on four levels: Level 1 is defined as 90% of funding in any one category in the previous actual year. Level 2 is the actual funding of the year preceding the budget year. Level 3 and Level 4 are funding levels arrived at by formula calculations. The difference between Level 3 and Level 4 is in the rates that are applied in the formula.

The actual level of funding used is not predetermined in the financing technique, but is the decision of the funder based on negotiations with institutions and analysis of requests calculated based on formulas.

### d. Ohio

The Ohio Board of Regents is a State agency with authority to review budget requests of universities, State colleges and public community colleges and submit to the Governor and the Legislature recommendations in regard to a biennial higher education State fund appropriation. The Board of Regents is responsible for distributing the approved State Budget for Higher Education to institutions based on a system of "program expenditure models". The funds allocated to universities and colleges by the State of Ohio exceeded $380 million in 1976-77.

#### 1. Description of the Financing Technique[1]

The financing technique can be classified as predominantly zero-based formula financing with the instructional base calculated on the outcomes side of the ICLM, using the category formula method. The outcomes measure is full-time equivalent student by program category and level.

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[1] Sources of information: Ohio Board of Regents, "Program Expenditure Models for Higher Education Budgeting 1975-77"(Columbia, Ohio, 11 June 1975); Ohio Board of Regents, "Revisions to Uniform Information System Procedural Manual" (Columbia, Ohio, 1 July 1975); Telephone conversation with Dr. Richard R. Perry, Associate Vice-President for Academic Affairs, University of Toledo.

The financing technique is based on program cost information for the base year for various student programs. Sixteen student program groupings are differentiated by field of study and by level of study as follows:

- General Studies - Three Levels
- Technical Education - Three Levels
- Baccalaureate - Three Levels
- Masters Professional - Three Levels
- Doctoral - Two Levels
- Medical - Two Levels

As a result of a comprehensive cost analysis, each student program has a model expenditure budget per student, format shown in Figure 5.4, which contains the following five component parts:

1) Department Instruction and Research
2) Academic Support
3) Student Services
4) Institutional Support
5) Plant Operations

The expenditure models contain only instructional and general expenditures which are considered to be the representative of all institutional expenditures.

## 2. Use of the Financing Technique

Using the base year models, the Board of Regents through consultation and active participation of representatives from senior and two-year institutions develops a model for the budget biennium.

The basic objectives of the Ohio Board of Regents' system of financing higher education are:

## FIGURE 5.4

## SAMPLE FORMAT OF PROPOSED EXPENDITURE PER FTE STUDENT IN A STUDENT CATEGORY

| | BASE 1974-75 | MINIMUM 1975-76 | CONTINUATION 1976-77 |
|---|---|---|---|
| A. Departmental Instruction and Research | | | |
| 1. Faculty Compensation | | | |
| 2. Other Departmental Compensation | | | |
| 3. Other Departmental Expense | | | |
| Total Departmental Instruction | | | |
| B. Academic Support | | | |
| C. Student Services | | | |
| D. Institutional Support | | | |
| E. Plant Operation | | | |
| TOTAL EXPENDITURE PER FTE STUDENT | | | |

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1) To ensure support for basic instructional expenditure needs of institutions

2) To distribute available State funds on an "equitable, objective basis"

3) To distribute available State funds on a "differential basis" in relation to the number of students in different programs, recognizing that different program categories have different requirements in levels of expenditures

4) To ensure that funding which is the result of a detailed analysis based on comprehensive costing models should not be considered as a prescription for spending within institutions, but only as a means for determining appropriate levels for State support.

The information system which generates the base year expenditure models by program is complicated, but well defined and computerized. Institutional information is used as input to a centralized data processing system. Data can be retrieved to serve many analytical requirements besides cost studies, with institutional characteristics and geographical locations well distinguished to facilitate management information needs.

## e. Oklahoma

The Oklahoma State Regents for Higher Education (OSRHE) are responsible for recommending to the Governor and the Legislature the allocation of operating funds for the 25 colleges and universities and nine other agencies which comprise the Oklahoma State system of higher education. The Regents are also responsible for the distribution of allocated funds to individual institutions. Budget needs for the 1976-77 fiscal year for the State system amounted to $165 million.

### 1. Description of the Financing Technique[1]

The process of budget submission can be classified as zero-based formula financing on the activities side of the ICLM. The financing technique used for allocation, on the other hand, is an incremental formula. Institutional budget requests are calculated using a program budgeting prediction model, while the allocation process is a base year's actual and an increment which is allocated on an agreed (formularized) procedure.

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[1] The following sources of information were used: Telephone conversations with Murriel Gilliam, Assistant Director of Institutional Research Oklahoma State University, Stillwater, Oklahoma, 17 June 1976 and 28 July 1976; Oklahoma State Regents for Higher Education, Operating Budget Needs of The Oklahoma State System of Higher Education for the 1976-77 Fiscal Year (State Capital, Oklahoma City: State Regents, January 1976); Wm. Mack Usher, "OSRHE Program Budgeting Model (A Conceptual View)" (Stillwater, Oklahoma, Oklahoma State University, 20 October 1975).

The model used to calculate budget submission resource requirements for the three primary programs, instruction, organized research and extension or public service, is based on the NCHEMS RRPM[1] methodology. Historical rates (costs per FTE student by level) are developed for the instructional program. Organized research and extension or public service costs are distributed, based on academic salaries as determined by the model associated with these programs. Support costs are assigned to primary program costs on academic salaries. There are eight cost categories:

1) General Administration
2) Operation and Plant Maintenance
3) Organized Research
4) Extension or public Service
5) Instruction and Departmental Research
6) Organized Activity
7) General Expenses
8) Libraries

The rates used to determine system budget requirements are averages calculated for like institutions. Institutional sources of income other than the OSRHE operating grant are also part of the budget model. Each expenditure category can be broken out according to the sources of income generating the funds for the expenditure category. The model utilizes a faculty activity analysis in use for six years in the State. The faculty activity analysis data are also used for internal management purposes and are audited using timetable information. This information is considered quite reliable.

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[1] Warren W. Gulko and K. M. Hussain, A Resource Requirements Prediction Model (RRPM-1). An Introduction to the Model, Technical Report 19 (Boulder, Colorado: NCHEMS at WICHE, 1971).

### 2. Use of the Financing Technique

Based on the institutional budget model as applied to each institution, the Regents compile a submission to the Governor and the Legislature showing proposed budget requirements for each institution. Requirements are shown for each institution in discipline and program detail by level. The specific data listed includes the enrolment (budgeted) program costs per FTE student, program costs by level and total program costs. In addition, research and public service requirements are shown but the detail of calculation is not given. The estimated income is broken out into two sources, State Appropriated Funds and Revolving Funds. The budget requirements shown in this submission are on the average, 10% lower than those submitted by the institutions to the Regents. The funds approved by the State Legislature and Governor are usually Regents' recommendations reduced by an additional 10%. Technically the Legislature allocates directly to the institutions. As a rule, the institutions receive the same amount of money as in the previous year and the Regents get an amount additional to the institutions' base appropriation. This incremental portion is allocated to the institutions by the Regents on the basis of the institutional asking budget.

### f. Florida Universities

The State agency responsible for distributing funds to nine universities in Florida is the Board of Regents (BOR). It is a consolidated governing board which submits a budget to the Governor's Office and the Legislature. Four professionals in the Governor's Office and one assigned to the Legislature separately review the BOR budget submission and both government Houses pass the annual budget bill around April, for the fiscal year beginning July 1.[1] An extensive system of formulas generates 80% to 90% of the BOR budget. Close to $490 million in State funds were allocated to the system in 1975-76.

### 1. Description of the Financing Technique[2]

The financing technique can be classified as zero-based formula with the instructional base calculated on the activities side of the ICLM, using the productivity ratio formula method. The formula was designed to accommodate the following general principles:

1) Comparable resources for comparable programs

2) Economies of scale should result in lower cost per student at larger universities

3) Significant changes in funding should be phased-in to allow for adjustment

4) Special allocations should be made for unique programs

The financing technique differentiates three major groups of expenses:

1) Instruction and research based on formula

2) Instruction and research special (non-formula)

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[1] Lyman A. Glenny et al, State Budgeting for Higher Education: Data Digest (Berkeley, California: University of California, 1975).

[2] Information for the survey of the funding of Florida universities was obtained from the following documents: Board of Regents, State University System of Florida, "Explanation of Allocation of 1974-75 Education and General Appropriation"; and "Preliminary Version of Final Report, Program Analysis Study Group #1 (Academic)", State University System of Florida (Tallahassee, Florida, 1 April 1976); Personal conversations with J. Kent Caruthers and David C. Montgomery, on several occasions.

3) Other expenses such as computer, administration, extension, audio visual, plant operation and maintenance

*Instruction and Research (Based on Formula)* - The calculation of instruction and research category expenses is based on student enrolment in the base year. The formula uses system-wide instructional productivity ratios (student credit hours per FTE teaching position) for each discipline category and level, and separates the program of instruction from research, academic advisement, public service, and academic administration.

Once the academic FTE positions are calculated, State wide salaries which explicitly take into account effects of inflation, labor negotiations and professional development are applied to arrive at budget academic salary expenses. Budget academic salary expenses assigned to various institutions are nontransferable into any other expense category.

Budget research, academic advisement and other instructional programs' FTE positions are determined as follows: The ratio of academic FTE positions in these categories in the base year to teaching academic FTE positions in the base year is multiplied by academic FTE positions in the budget year as determined by productivity ratios.

Nonacademic positions which directly support the primary academic programs are calculated on the basis of a ratio of nonacademic positions to academic positions. The ratios are based on historical precedent and the number of positions available for allocation.

The calculation of expense dollars is based on a dollar rate per academic position, i.e., rate per base factor method.

*Instruction and Research Special (Non-formula)* - Funding methodology of the specially funded programs is reviewed annually and changed according to need. The non-formula portion of the instruction and research base is calculated through special allocation made to accommodate special programs and legislative intent. Such special allocations are for centres of excellence, program development, research institutes and other special programs.

*Other Expense Categories* - A variety of methods is used in allocation of funds to individual categories in this group. The majority of methods result in an allocation which is proportional to the instruction and research category allocation. Plant and maintenance, and administration and general expense categories are treated separately. The plant and maintenance category is funded on gross square footage of educational buildings. The administration and general programs reflect the economies of scale based upon formulas developed to accommodate enrolment size and volume of administrative transactions. The formulas were developed through multiple regression procedures from three years of historical fiscal data.

### 2. Use of the Financing Technique

The Florida financing technique as described above has been used since 1974-75 to generate institutional budget requests and to allocate legislature-approved funds to institutions. Productivity ratios and other rates used in arriving at institutional budget requests, are changed by the BOR so that budget shortfalls do not necessarily result in across-the-board reductions but can differentially impact various programs and take into account various priorities.

Current procedures are under review by a program analysis group. There has been a general lack of satisfaction with the way the funds from the legislature were allocated to institutions. Originally the terms of reference of the study group included the needs to improve allocation procedures in two directions: (a) Follow closer actual costs (there are presently cost studies undertaken which were to be used for this purpose), and (b) Associate allocation with quality of education. The group has relinquished efforts on both counts in its preliminary version of final report in April 1976.[1] It found that historical cost differences shown in cost studies are not necessarily an indication of desired cost differences. Similarly, it was found that there was no link between allocation and quality, "there are too many links in the chain between the Board of Regents and the student to expect that the central office of the State University System can push at one end and predict that the student at the other will be affected exactly as desired".

The report does agree on a guideline according to which the allocation to each university must be taken as a whole. Universities should have the autonomy to have different academic policies and teaching techniques. Therefore "internal allocation is not expected to follow the procedures specified for the allocation among universities".

### 3. Application of the Formula with Alberta Data Base

The University of Alberta and The University of Calgary cost studies data are used to classify FTE academic faculty into the primary programs of instruction, research and public service and other support categories. The base year is 1972-73. The productivity ratios in this application are developed using the average ratio of course enrolees to instructional FTE faculty for The University of Alberta and The University of Calgary. Research, public service and other FTE are calculated using ratios to instructional FTE. Course enrolee projections are based on 1973-74 official student enrolment projections. Projected course enrolees by faculty are multiplied by the productivity ratios to yield FTE requirements for the budget year.

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[1] Board of Regents, State University System of Florida, "Preliminary Version of Final Report, Program Analysis Study Group #1 (Academic)", State University System of Florida (Tallahassee, Florida, 1 April 1976).

Given the FTE requirements there is no need to calculate total dollars for the instruction and research program, since the effect of system-wide productivity ratios on allocation of grants was to be illustrated. It is sufficient to distribute the instruction and research dollars in proportion to the FTE faculty.

Because of lack of information, other expenses are assigned in proportion to academic FTE positions with the exception of plant and maintenance, representing 11.7% of the total, which can be distributed as in the Florida application on square footage in academic buildings. Table 5.3 shows the results of the application on grant distributions in the base year and the budget year. Detailed data and calculations are shown in Appendix U, Tables 8 and 9.

TABLE 5.3

APPLICATION OF THE FLORIDA UNIVERSITIES FORMULA TO THE UNIVERSITIES SECTOR[a]

($'000)

| | 1972-73 | | | 1973-74 | | |
|---|---|---|---|---|---|---|
| INSTITUTION | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
| The University of Alberta | 50 658 | 51 481 | + 1.62 | 54 224 | 54 987 | + 1.41 |
| The University of Calgary | 25 587 | 26 186 | + 2.34 | 27 382 | 28 082 | + 2.56 |
| The University of Lethbridge | 4 705 | 3 283 | -30.22 | 5 095 | 3 632 | -28.71 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | |

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[a] Excludes Faculties of Medicine--see Section A. c.

The effect of the application of the formula can be measured by extending the formula calculations to derive total expenses for faculties and schools, and comparing these results with actual expenditures in the base and budget years (Table 5.4). The calculations include the following steps:

1) Sector-wide average salaries are multiplied by FTE positions to obtain total academic salaries

2) Sector-wide ratios of support salaries to academic salaries are applied to academic salaries in each institution to obtain support salaries

3) Sector-wide supplies and sundries expenses ratios to academic salaries are applied to the calculated academic salaries in each institution. The resulting total represents the calculated total expenses for faculties and schools.

The test is not carried further to calculate expenses outside faculties and schools since data limitations prevent duplication of procedures followed in Florida.

### 4. Evaluation of the Formula with the Alberta Data Base

The purpose of this section is not to judge the application of the Florida formula in Florida. Instead, we list strengths and weaknesses of the application of the Florida formula in the Alberta context, the constraints of the project guidelines, and the Alberta data base capabilities.

The formula used in Florida universities system has the following strengths when considered for Alberta application with Alberta data base:

1) It is a comprehensive, analytically supported financing technique which uses full-time equivalent teaching faculty positions as a primary indicator of resource requirements.

## TABLE 5.4

## FACULTIES AND SCHOOLS EXPENSES DETERMINED USING FTE CALCULATIONS IN THE FLORIDA UNIVERSITIES APPLICATION[a]

($'000)

| INSTITUTION/EXPENSE | 1972-73 CALCULATED EXPENSES | 1972-73 PERCENTAGE CHANGE FROM ACTUAL | 1973-74 CALCULATED EXPENSES | 1973-74 PERCENTAGE CHANGE FROM ACTUAL |
|---|---|---|---|---|
| The University of Alberta | | | | |
| Academic Salaries | 26 735 | + 0.32 | 28 252 | - 0.94 |
| Support Salaries | 5 852 | - 8.32 | 6 255 | -10.69 |
| Supplies Expenses | 6 678 | - 7.98 | 6 523 | -16.60 |
| TOTAL | 39 265 | - 2.55 | 41 030 | - 5.34 |
| The University of Calgary | | | | |
| Academic Salaries | 13 146 | - 0.54 | 13 841 | - 2.31 |
| Support Salaries | 2 878 | + 9.26 | 3 064 | +11.14 |
| Supplies Expenses | 3 284 | +13.09 | 3 196 | +45.01 |
| TOTAL | 19 308 | + 2.94 | 20 101 | + 5.08 |
| The University of Lethbridge | | | | |
| Academic Salaries | 1 539 | -33.75 | 1 712 | -31.85 |
| Support Salaries | 337 | +53.18 | 379 | +53.44 |
| Supplies Expenses | 384 | + 1.59 | 395 | - 4.36 |
| TOTAL | 2 260 | -22.63 | 2 486 | -21.63 |

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[a] Excludes Faculties of Medicine and Graduate Studies, and Cooperative Study.

2) The formula differentiates primary programs as per the Program Classification Structure.

3) Formula variables are base year actuals plus adjustments only for technical and inflationary reasons. This makes the formula operational without the requirements for annual policy inputs.

4) The formula gives an indication of institutional and system resource requirements in academic positions as well as in dollar amounts.

The main weaknesses are as follows:

1) The formula is not suitable for Alberta application mainly because it is based on a faculty activity analysis. Alberta institutions have not conducted faculty activity analyses of the sort which yield system-wide comparable data useful in the Florida methodology of determining productivity ratios.

2) FTE academic faculty is one of the least well defined and uniformly kept data elements in the Alberta universities sector, and is not available for Alberta public colleges.

3) Development of a system-wide average salary rate for academic FTE faculty and non-academic FTE faculty positions is difficult because of time frame problems (for example, salaries data are available for fiscal years while FTE faculty counts are as of December 1). It is difficult to project salary rates taking into account the effects that inflationary and collective bargaining developments will have on salary levels in various institutions. These factors become critical if they are used as an integral part of the allocation formula.

4) The financing technique requires data which are not routinely maintained in institutional files. Development of information systems to accommodate the financing technique would include computerized faculty and support staff flow models and the capability to regularly gather faculty activity analysis information. Evolution of institutional information systems to this point in Alberta would suggest that the necessary developments would not take place without considerable external encouragement.

5) Institutional differences in organization and staffing policies would become critical if ratios of support staff positions to academic staff positions are calculated in the formula.

g. Washington

Financing of higher education in the State of Washington is controlled by various government offices and agencies. State policies originate from the Governor's Office, and the coordinating agency, the Council of Higher Education (CHE) provides advice and analytical support for policy decisions. The system includes two State universities, four State colleges and 22 community colleges with 27 campuses. The community colleges fall under a separate college board which cooperates with CHE[1]. State allocation to institutions in the system amounted to some $370 million in 1975-76.

1. Description of the Financing Technique[2]

Because the financing technique is a combination of decision-making processes in various paradigms (see Chapter III. C. a.), it can be classified as zero-based non-formula. A series of zero-based formulas are used to calculate 50% to 60% of institutional budget requests. However, the allocation of funds is not based on these formulas, even though institutional budget requests are taken into account in funding decisions.

*Instructional Base* - The formula used to calculate the instructional base can be described as follows:

A productivity ratio of full-time equivalent faculty to student credit hours in four levels is used to calculate Faculty Entitlement. Certain university faculties such as engineering and architecture, fishery and forestry have lower productivity ratios than those established for each level. Faculty Entitlements are multiplied by average faculty salaries at each institution to arrive at dollar entitlement. In addition, there are non-comparable elements such as military sciences, summer session, health sciences and new programs.

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[1] Lyman A. Glenny et al, State Budgeting for Higher Education: Data Digest (Berkeley, California: University of California, 1975).

[2] Sources of information: Council for Postsecondary Education, "Review of Higher Education Budget Formulas", Progress Report; Council for Postsecondary Education, Formula for Calculating Budget Requirements; Telephone and personal conversations with Dennis Curry, Acting Executive Co-ordinator, Council of Higher Education, Washington.

For community colleges, the budget formula operates like that of the four-year institutions, except that academic and vocational programs are differentiated. In the academic program, the productivity ratio of the lower level is used to calculate Faculty Entitlements, and in the vocational program, a student-faculty ratio which varies in different schools is used. Summer session is also included in the formula.

University Instructional Support Entitlement is calculated based on the number of FTE faculty and is adjusted annually for inflation and salary increases. In community colleges, Instructional Support Entitlement is based on historical experience.

*Library* - The "formula" is based on different rates for four-year and two-year institutions, and is related to a series of indicators such as FTE faculty, FTE students, vocational programs, graduate students in various programs, public services, technical services. It is an elaborate system that takes into account institutional differences. Therefore, it is not really a formula but rather a collection of indicators which vary according to the profile of each institution, on which decisions are based.

*Student Services* - University student services entitlements are calculated using a dollar rate per base factor unit. The following units are used: Number of applications, number of full-time students by level, number of part-time students, number of institutionally controlled residence beds, number of former students with active placement file and series of non-comparable elements. For colleges, each institution calculates student services staff requirements and multiplies those by average salaries.

*Plant Operation and Maintenance* - Plant Operation and Maintenance is based on the following indicators: Replacement value of buildings, square footage served for janitorial services, ground maintenance, utilities maintenance, and utilities. In addition, there are non-comparable elements such as administration, police, fire, safety, trucking services, refuse disposal and other activities. The non-comparable elements are formularized in the community colleges.

### 2. Use of the Financing Technique

As a result of recent criticism of the formulas and the fact that they have not been reviewed since 1960, the Governor asked the Council for Postsecondary Education in 1975 to work with institutions and other planning and fiscal management offices in postsecondary education to review current formulas in various jurisdictions.

The December 1975 progress report of the Council for Postsecondary Education cites the following purposes for higher education budgeting formulas:

1) To provide information for making valid funding support comparisons between institutions over extended time periods

2) To provide a mechanism which would ensure reasonable equity in the distribution of available resources among the 6 four-year institutions and the community college system

3) To provide for consistent treatment of the four-year colleges and universities and the community college system

4) To assist the Governor and the Legislature in establishing reasonable funding levels within available resources to support the services which are provided.

From the progress report it appears that budget formulas in the State of Washington currently serve primarily management information purposes. The progress report also explains that an entitlement calculated with the use of formulas does not and should not represent guaranteed funding levels.

3. Application of the Formula with Alberta Data Base

Testing the formula for calculating the instructional base is illustrated with Alberta data using productivity ratios based on cost study data by course level. The concept is identical to that used for testing the Florida instructional base, except that productivity ratios are applied in level totals and not by discipline group. Table 5.5 shows grant distributions for 1972-73 and 1973-74 based on the instructional base calculated with this methodology. Appendix U, Table 10 shows calculated FTE faculty positions compared with actual FTE faculty numbers.

4. Evaluation of the Formula with Alberta Data Base

The purpose of this section is not to judge the application of the Washington formula in Washington. Instead, we list strengths and weaknesses of the application of the Washington formula within the Alberta context, the constraints of the project guidelines and Alberta data base capabilities.

The formula has the following strengths:

1) The instructional formula is not based on a program classification structure, but assumes "all other things are equal" to instruction within primary programs.

2) The academic FTE requirement, based on a productivity ratio

## TABLE 5.5

## APPLICATION OF THE WASHINGTON FORMULA TO THE UNIVERSITIES SECTOR[a]

($'000)

| INSTITUTION | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
|---|---|---|---|
| | 1972-73 | | |
| The University of Alberta | 50 658 | 52 262 | + 3.17 |
| The University of Calgary | 25 587 | 25 514 | - 0.29 |
| The University of Lethbridge | 4 705 | 3 174 | -32.54 |
| TOTAL SECTOR | 80 950 | 80 950 | |
| | 1973-74 | | |
| The University of Alberta | 54 224 | 55 355 | + 2.09 |
| The University of Calgary | 27 382 | 27 765 | + 1.40 |
| The University of Lethbridge | 5 095 | 3 581 | -29.72 |
| TOTAL SECTOR | 86 701 | 86 701 | |

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[a] Excludes Faculties of Medicine--see Section A. c.

accounts for a large proportion of the expenditure of an institution. Therefore, if this portion is applied uniformly for four-year institutions, other expenditures like academic support and supplies that form the total instructional expenditures, can be calculated giving consideration to institutional peculiarities.

3) Other expenditure categories, such as libraries, student services, plant operation and maintenance, are non-formula and therefore can reflect institutional concerns and characteristics, yet can become a part of the overall distribution scheme.

4) Differentiation by level only and not by discipline in the productivity ratio determination, makes institutional autonomy more explicit

in respect of internal distribution of funds. The problem of "which side of the ICLM" is not relevant since course levels are the only distinction. The generated student workload can be expressed in FTE students by course level. The relationship between FTE students by level and the output type of measure of full-time students by level is an easily understood measure, which is void of the intricacies associated with the ICLM. The only assumption needed is that a full-time equivalent student represents a certain number of workload units in each level. These workload ratios can be considered stable and part of the formula.

The following weaknesses of the Washington State financing formula should be considered:

1) There is a need for criteria in establishing productivity ratios by level. The Alberta data base does not provide productivity ratio information by level. Therefore, a possible solution would be elementary model type of productivity ratios based on assumptions that are tested and accepted by parties involved.

2) The basis for separating instructional expenditures from other expenditures in institutional financial statements becomes important.

3) Other expenditure categories are treated outside of a formula and represent a significant portion of the budget. Hence, the danger exists that overly complicated and expensive methods will be developed to take care of institutional concerns or alternatively non-formula grants may neutralize the effect of the formula.

### h. Oregon

The Oregon State System of Higher Education (OSSHE) is comprised of three universities, three four-year colleges, a technical institute and the medical-dental health sciences complex. The Oregon Board of Higher Education requests biennial budgets from the Legislature and is responsible for developing and improving methods of budgeting and allocating funds to OSSHE institutions. In 1974-75 the total OSSHE budget, not including the health sciences complex, amounted to $95 million.

1. Description of the Financing Technique[1]

The financing technique used in the Oregon State System of Higher Education is presently in transition and will include a new funding formula. The formula used until the biennium ending in 1976 can be classified as a zero-based formula on the outcomes side of the ICLM. Instruction, library and student services budget requirements are determined by the formula which weights FTE students by level. The formula recognizes three levels. Two additional categories, General Administration, and Physical Plant Operation and Maintenance are recognized. Allocations to these latter categories are based on historical precedent and are intended to cover fixed costs in these categories.

In 1974, the Department of Higher Education initiated development of new methods for the biennial budget requests and institutional allocations. The existing financing technique was termed "over-simplified" and the following four major weaknesses were identified with the formula:

1) "There is no external standard against which to measure the adequacy of the funds provided.

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[1] Sources of information: "A Revised Budgeting System for the Oregon Department of Higher Education", A report prepared by staff of the Board's Office and representatives of the institutions (Corvallis, Oregon, January 1976); Stefan D. Bloomfield and Freeman Holmer, A Resource Allocation Model for the Oregon State System of Higher Education (Corvallis, Oregon: Oregon State University, February 1976).

2) "Institutions with a large proportion of part-time students believe that the reliance on 'full-time equivalent students' as the basis for budget allocation may underestimate the costs that should be incurred in serving part-time students.

3) "Institutions with higher than average proportions of lower division or graduate students question the present allocation judgment that ratios of 1.00 (lower division), 1.25 (upper division), and 2.00 (graduate) reflect cost difference realistically.

4) "Some institutions questions whether 'average' funding adequately reflects the costs of the mix of academic programs at particular institutions."[1]

A committee comprised of three members from each institution was established to develop the new financing technique. The committee was named 'Committee on Resource Acquisition/Allocation (CORA/A)'.

The new financing technique developed by CORA/A will be applied in the 1977-78 and 1978-79 biennium. The new formula is designed to reflect the following principles:

1) Individual institutional requirements by virtue of specific activities unique to an institution, should be recognized explicitly by including such activities in the formula with appropriate workload parameters and cost standards.

2) Of the possible three methods of determining cost standards, e.g., policy norms, historical averages and comparable, external institutional

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[1] "A Revised Budgeting System for the Oregon Department of Higher Education", A report prepared by the staff of the Board's Office and representatives of the institutions (Corvallis, Oregon, January 1976), p. 1.

information, it was decided that where possible, policy norms should be developed and until such norms are developed, external averages should be used and historical data should be avoided.

The use of external comparisons brought the importance of information systems and inter-institutional information exchange capabilities into foreground.

The technique can be classified as a zero-based formula on the activities side of the ICLM. It classifies expenditures into seven functional program categories which are as follows:

1) Instruction
2) Non-sponsored Research
3) Extension or Public Services
4) Libraries and Museums
5) Student Services
6) Operation and Maintenance of the Physical Plant
7) General Institutional Support

The instruction function has the following subcategories or elements:

a) Instruction per se
b) Coordination of Instruction
c) Administrative and Clerical Support
d) Technical Support
e) Staff Development and Inservice Training
f) Services and Supplies
g) Other

The algebraic structures used in the instruction program category are function productivity ratios, while the other functional categories use percent per base factor and rate per base factor unit structures. Within each of the seven functional program categories budget requirements are calculated using different methods.

1) *Instruction* - Within the instruction function, academic staff salary requirements are calculated using a productivity ratio, FTE faculty per student credit hour taught, projected student credit hours and the average annual salary of faculty members. Academic staff salary budget requirements in HEGIS Taxonomy discipline groups are designated for each undergraduate course level and two graduate student levels. Expenditures in the other instructional subcategories are calculated using percent per base factor methods with academic salary requirements as the base factor.

2) *Non-Sponsored Research* - The total allocation to this category is based on comparison with external jurisdictions. Allocation to institutions is based on the instruction category using percent per base factor method.

3) *Extension or Public Services* - This category is non-formula and based on historical information.

4) *Libraries and Museums* - Resource requirements are calculated based on a large number of formulas related to resource requirements which are calculated for various categories in the library program, such as staff, volumes, support expenses which vary by various activity categories.

5) *Student Services* - The formula is related to student headcount and takes institutional economies of scale into account by applying various rates to a basic number and a marginal number of students.

6) *Operation and Maintenance of the Physical Plant* - The formula is essentially the same as the one used in Washington State. It differentiates between institutions based on the individual requirement on detailed formulas in various expenditure classes.

7) *The General Institution Support* - This category calculates cost based on total dollars expended and the average headcount of students and staff. This methodology is temporary until accounting procedures permit a more sophisticated approach.

2. Proposed Use of the New Financing Technique

The transition to the new financing technique is envisioned as a gradual one, which phases in the proportion of State funds to be distributed on the new formula. The State information system is not yet at the level to support calculations of policy parameters to be used as rates in the formula and will undergo development during the phasing-in process. Thus methodologies and formulas used in calculating requirements in expenditure categories are subject to revision as the information system is developed to support a more suitable financing technique and procedures.

### i. Colorado

Colorado Commission on Higher Education (CCHE) is the State agency with budgetary authority for higher education. It is responsible for the coordination of 12 four-year colleges and universities and 11 two-year colleges, all under governing boards. Four district colleges are funded through flat grants per FTE student. The CCHE has a staff of 13 and cooperates closely with the Governor's budget staff. The Legislative Branch has a dominant role in drafting the budget bill.[1] The Colorado Higher Education budget was in excess of $400 million in 1976-77 and generally accounts for 50% of the total State budget. It is an annual budget with the fiscal year beginning July 1.

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[1] Lyman A. Glenny et al, State Budgeting for Higher Education: Data Digest (Berkeley, California: University of California, 1975).

1. Description of the Financing Technique[1]

The financing technique can be classified as non-formula because the allocation follows intensive negotiations with the institutions and is decided primarily by the Legislature in cooperation with the Governor's Office. The institutional budget submissions are an information base which supports negotiations and allocation decisions, but no algebraic relationships determine the actual allocation.

The methodology of submitting institutional budgets is based on a variety of formulas which build institutional budget requests in program categories. The primary programs of instruction, organized research and public service are differentiated for teaching institutions and other primary programs are distinguished for non-teaching agencies only. Support programs are categorized as follows: Library, Plant and Maintenance and Institutional Support. These formulas are reviewed to gain insights into the algebraic relationships considered meaningful in generating institutional budgets.

*Instruction* - The formulas generating the instruction component of institutional budgets are on the activities side of the ICLM. A productivity ratio FTE student per FTE staff is used to calculate academic positions. FTE students are calculated based on numbers of student credit hours by course level. (The level of student generating the student credit hours does not determine the level.) The norms for student/staff ratios are determined by the funder based on statistical averages and policy decisions. The formula for calculating support staff requirements in the instructional program makes distinction according to the number of teaching faculty in the program (economies of scale), and the level of the program. A matrix of ratios of support to professional staff is developed to take these factors into consideration. In 1976-77, projected faculty needs and subsequently support staff needs were also differentiated by groups of institutions that share some important characteristics with respect to role, admission and level of offerings and urban versus rural setting. Faculty requirement norms are developed in discipline groups according to the HEGIS Taxonomy across all institutions classified into one group. Faculty compensation takes into consideration natural salary levels and varies among institutions because of differences in institutional levels of faculty compensation from the State and National averages.

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[1] Information for the survey of the funding of higher education in Colorado was obtained from the following sources: Colorado Commission on Higher Education, "Operating and Capital Construction Budget Recommendations 1976-77" (Denver, Colorado, December 1975); Colorado Joint Budget Committee "1976-77 Appropriations Report" (Denver, Colorado, n.d.); Colorado Commission on Higher Education, "1977-78 Manual of Instruction for College, University and Selected Agency Request Budgets" (Denver, Colorado, 12 July 1976); Telephone conversation with Dr. Jerome F. Wartgow, Director of Planning, Department of Higher Education, Colorado Commission on Higher Education.

*Organized Research* - Total higher education research includes State funded organized research, i.e., that portion of the total research program that is funded by the State and for which support is allocated by the institution administration to further State and institutional objectives; and sponsored research, i.e., research funded by agencies outside the institution. Budget requests handling this primary program are generated in the narrative mode without formulas.

*Public Service* - Most institutions classify public service activities in the budget categories of instruction because of lack of definitions and overall institutional role and mission statements in this program.

*Library* - Budget requests in this category are negotiated. Information to support such incremental budget submissions is based on a detailed set of definitions.

*Plant and Maintenance* - This budget item includes salaries, wages, supplies, utilities and other operating expenses for operation and maintenance of the physical plant. Full-time staff requirements in this category have the same definition as those in other support programs, i.e., they are calculated on an hourly basis.

*Institutional Support* - All budget requests associated with support programs are justified in narrative submissions following arguments which are basically incremental but use data elements that are based on common definitions.

2. Use of the Financing Technique

The budgeting process begins in June of the year preceding the budget year with the CCHE issuing a set of instructions and budget forms approved by the Legislature and the Governor's Office. Institutions submit their budget in September. Analysis and negotiations related to the institutional budget submissions are conducted by the budget staff of all three government bodies. The CCHE presents recommendations in January and the budget bill is approved and signed in May preceding the July 1 start of the fiscal year.

The budget forms and instructions prepared by the CCHE conform to definitions of the National Center for Higher Education Management Systems (NCHEMS), Information Exchange Procedures Project (IEP). In addition to their use as information support for the budget request, some forms are used as input to a computerized statewide information system of higher education.

Systematic coordination with existing institutional and statewide educational plans is a requirement spelled out in budget instructions. In view of the 1976-77 statewide austerity program, the CCHE has taken the position that no new programs or activities or improvements in quality levels beyond those expressed in recent Legislative action, may be recommended unless there is extenuating circumstance requiring such action. The traditional open-door policy of higher education institutions in Colorado has been maintained through the year of financial constraint. At the same time, in order to enable institutions to respond to changing circumstances and restricted resources, the Commission has recommended a more global approach to budget approval with more flexibility in respect of enrolment numbers and summer session enrolments. Generally Legislative restrictions attached to line items have been relaxed so that institutional managers have "the freedom to manage".

The 1977-78 'Manual of Instructions for Budget Requests' contains a new proposed allocation formula known as the "President's Formula". It is a proposal for allocating the numbers of faculty and consequently the major portion of the available State dollars to various institutions. The formula was developed by the Institutional Presidents' Association and is based on the following principles:

1) Faculty needs should be estimated based on student/faculty ratio guidelines. These guidelines were developed for HEGIS discipline groups and vary by course level. The ratios were derived from the guidelines used for calculating faculty teaching requirements presented in budget recommendations of the CCHE several years ago.

2) The student/faculty ratio guidelines are used to determine the overall size of the instructional faculty at an institution, rather than the

number of faculty assigned to a particular discipline. This approach provides flexibility to the institution in assigning faculty positions in ways most appropriate.

3) Individual variations from the formula allocation would be allowed in those instances where the institution can demonstrate special circumstances that justify such variations.

4) The formula would determine the required number of faculty only, not the the appropriations for compensation. Appropriations for compensation per faculty member differ among institutions and sectors. It is assumed that differences which are based in part on a different market in which the institutions compete for faculty, will continue.

5) Institutions should continue to make refinements in student faculty and course data to accommodate inter-institutional comparability.

## j. Alberta Universities

### 1. Description of the Financing Technique

One of the practical and tested financing techniques is one familiar to Alberta and Canada postsecondary education. The Alberta universities formula is a zero-based formula on the outcomes side of the ICLM which uses the rate formula method. Enrolment unit weights are applied to full- and part-time students in various student academic program categories and student levels. The resulting institutional total number of enrolment units is used as a basis for distributing formula grants to Alberta universities.

Application of the Alberta universities enrolment unit formula as a means for distribution of funds to Alberta public colleges has not been possible because the colleges have not maintained comparable student records nor classified students according to the student academic programs in which they registered. This test application of an outcomes formula is only made workable because of the student outcomes data gathered in the Program Registry format and shown in *Planning Paper Two* (142) for the academic year 1975-76. Alberta public college student program categories defined by the Program Registry are nominally integrated with comparable university programs and hence enrolment unit categories as shown in Figure 5.5. Cost analysis in public colleges indicates that costs per student in university transfer programs are not consistently nor significantly different from those in diploma and certificate programs.[1]

FIGURE 5.5

ENROLMENT UNIT WEIGHTS
FOR PUBLIC COLLEGES

| WEIGHT ASSIGNED FTE STUDENT | STUDENT PROGRAM TYPE PROGRAM REGISTRY CLASSIFICATION |
|---|---|
| 1.0 | Academic Upgrading; Agriculture; Arts & Humanities; Computing Science & Data Processing; Continuing Education Credit; Forestry; Household Economics & Food Science; Institutional House & Grounds Keeping; Medical & Allied Health; Multi-disciplinary Studies; Science; Social Science; Special; Not Classified. |
| 1.5 | Business & Commerce; Engineering; Fine Arts, Applied Arts & Communications - everything except Music; Hospitality, Tourism & Travel; Law; Personal Service; Recreation & Physical Education. |
| 2.0 | Library Science; Music. |

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[1] D. J. Cornish and J. F. Batty, Master Planning Monograph 8 - Resource Allocations, A Cost Analysis of the Five Public Colleges in Alberta 1970-71 (Edmonton, Alberta: Alberta Colleges Commission, June 1972).

## 2. Application to Public Colleges Data Base

The student data base used is given in *Planning Paper Two* (142). There are several possibilities that can be followed in the detailed explanation of the formula. Enrolment units calculated may or may not include groups of students who can be categorized by the type of grant the institution receives for their expenses. In order to match the students with the types of grants, for the purpose of the applications for Alberta public colleges, we include three alternative sets of students and grants: First only regular grants; second, regular and program grants; and third, all funding including Canada Manpower funds into the grants to be distributed. Table 5.6 shows the resulting distribution in the three variations.

Variation 1, *Regular Grants* are distributed based on FTE students considered "eligible for grants", that is, not those in new programs or sponsored students.

Variation 2, *Regular and Program Grants* are distributed based on FTE students in both regular and new programs, but not sponsored students.

Variation 3, *Regular and Program Grants, Canada Manpower and Priority Employment Training Program* funding are distributed based on FTE students in regular programs, new programs and Canada Manpower Programs.

## 3. Application to Alberta System

In this application, universities sector grants include formula and non-formula grants, less grant monies associated with expenditures in the Faculties of Medicine. Regular and program grants are included for the colleges sector. The derived test distribution is based on enrolment units generated by FTE students in the universities sector and regular and new program FTE students in the colleges sector, exluding enrolment units generated by Faculty of

## TABLE 5.6

## APPLICATION OF THE ALBERTA UNIVERSITIES FORMULA TO THE COLLEGES SECTOR

1975-76
($'000)

| INSTITUTION | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
|---|---|---|---|
| VARIATION 1: REGULAR GRANTS | | | |
| Grande Prairie Regional College | 1 486 | 1 100 | -25.98 |
| Grant MacEwan Community College | 4 671 | 6 200 | +32.73 |
| Lethbridge Community College | 2 850 | 2 507 | -12.04 |
| Medicine Hat College | 1 680 | 840 | -50.00 |
| Mount Royal College | 7 200 | 7 580 | + 5.28 |
| Red Deer College | 3 003 | 2 663 | -11.32 |
| TOTAL SECTOR | 20 890 | 20 890 | |
| VARIATION 2: REGULAR AND PROGRAM GRANTS[a] | | | |
| Grande Prairie Regional College | 2 047 | 1 405 | -31.36 |
| Grant MacEwan Community College | 5 007 | 6 799 | +35.79 |
| Lethbridge Community College | 2 850 | 2 511 | -11.89 |
| Medicine Hat College | 1 760 | 1 120 | -36.36 |
| Mount Royal College | 7 274 | 7 634 | + 4.95 |
| Red Deer College | 3 364 | 2 833 | -15.78 |
| TOTAL SECTOR | 22 302 | 22 302 | |
| VARIATION 3: REGULAR AND PROGRAM GRANTS AND CANADA MANPOWER FUNDING[b] | | | |
| Grande Prairie Regional College | 2 970 | 2 063 | -30.54 |
| Grant MacEwan Community College | 5 007 | 6 976 | +39.32 |
| Lethbridge Community College | 3 555 | 3 195 | -10.13 |
| Medicine Hat College | 2 027 | 1 416 | -30.14 |
| Mount Royal College | 7 274 | 7 834 | + 7.70 |
| Red Deer College | 3 792 | 3 141 | -17.17 |
| TOTAL SECTOR | 24 625 | 24 625 | |

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[a] Includes Industrial Education grants at Grande Prairie Regional College and Medicine Hat College.

[b] Also includes Priority Employment Training Program grants.

Medicine students and sponsored college students. In order for the application to match the actual application of the Alberta universities formula in this variation, The University of Lethbridge is given 40% additional enrolment units. Table 5.7 shows the results of this system-wide application.

TABLE 5.7

APPLICATION OF THE ALBERTA UNIVERSITIES FORMULA TO THE SYSTEM[a]

1975-76
($'000)

| INSTITUTION/SECTOR | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
|---|---|---|---|
| UNIVERSITIES SECTOR | | | |
| The University of Alberta | 77 364 | 77 508 | + 0.19 |
| The University of Calgary | 39 068 | 40 778 | + 4.38 |
| The University of Lethbridge | 7 032 | 6 919 | - 1.61 |
| TOTAL UNIVERSITIES SECTOR | 123 464 | 125 205 | + 1.41 |
| COLLEGES SECTOR | | | |
| Grande Prairie Regional College | 2 970 | 1 918 | -35.42 |
| Grant MacEwan Community College | 5 007 | 6 483 | +29.48 |
| Lethbridge Community College | 3 555 | 2 969 | -16.48 |
| Medicine Hat College | 2 027 | 1 315 | -35.13 |
| Mount Royal College | 7 274 | 7 280 | + 0.08 |
| Red Deer College | 3 792 | 2 919 | -23.02 |
| TOTAL COLLEGES SECTOR | 24 625 | 22 884 | - 7.07 |
| TOTAL SYSTEM | 148 089 | 148 089 | |

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[a] Excludes Faculties of Medicine--see Section A. c. In the colleges sector, grants include regular and program, Canada Manpower and Priority Employment Training Program funding.

## 4. Evaluation of the Formula with Alberta Data Base

Applications of the formula to the public colleges sector show significant differences between derived test distributions and actual distributions for each of the variations compared. The main reason for these deviations are institutional differences which are not taken into consideration by an enrolment unit formula, yet were handled implicitly in the existing incremental non-formula financing technique of public colleges. Examples of such differences are:

*Institutional Size* - Economies of scale are not reflected in enrolment unit weights, therefore the enrolment unit formula places smaller institutions in a disadvantageous position.

*Weighting of University Transfer Programs* - The application of the enrolment unit formula treats the public colleges' University Transfer program and the Diploma and Certificate programs equally. Thus, since funding under the existing public colleges technique seems to assign more money to University Transfer programs, implementation of the enrolment unit formula would move the distribution in favor of colleges that have no University Transfer program (see *Planning Paper Three*).

*Sponsored Students* - It appears from the test results in Variation 3 that Canada Manpower financing per FTE student in the Manpower program is not equivalent to AAEM grant per FTE student. In addition, the institution does not receive any fee revenue from Canada Manpower sponsored students. Thus, enrolment unit formula based distributions place institutions with large Canada Manpower programs at a disadvantage.

*Extension and Public Service* - The enrolment unit formula assumes that all primary program outcomes are in proportion to those of the instruction program. There are great differences in the degree institutions participate in extension and community service activities. Since some overhead costs associated with these activities are not recovered through fees, some institutions with greater community involvement are at a disadvantage with the enrolment unit formula application without non-formula compensation.

*System-wide Application* - Application of the formula to the Alberta system of universities and public colleges leaves individual institutional test distributions relatively the same as in the sector application. The remarkable feature of these test results is how closely the derived allocations for each sector match actual sector grants.

### k. Ontario Colleges of Applied Arts and Technology

The Minister of Education on recommendation of The Ontario Council of Regents established a standing "Committee on Colleges of Applied Arts and Technology Financing" which first met in March 1975 to "attempt to determine inequities in the current funding system for distributing available operating grant resources among the 22 colleges and to propose corrective measures".[1] The Committee was composed of two members of each of the following:

- Council of Regents
- Committee of Governors
- Committee of President
- Ministry of Colleges and Universities

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[1] Information for the survey of the funding of higher education in Ontario was obtained from the following sources: Committee on Ontario Colleges of Applied Arts and Technology Financing, Report to the Ontario Council of Regents (Toronto, Ontario, 10 September 1975); Meetings with Mr. John Humber and Ms. Joyce Batter, Institutional Accounting Branch, Ontario Ministry of Colleges and Universities, 13 July 1975 and 12 October 1976.

Following studies of the historical development of funding for the Colleges of Applied Arts and Technology (CAAT), the Committee agreed that equitability could not be restored by adjusting factors in the original operating grant formula. Therefore, the Committee developed a financial plan to be used as the basis for the distribution of global operating funds to be provided by the Ontario government. The financial plan was implemented in 1976-77.

1. Description of the Financing Technique

The financing technique can be classified as primarily zero-based formula on the activities side of the ICLM. The technique is primarily zero-based in the sense that it makes reference to prior years' expenses only to generate the formula factors to be applied.

The institutional grant consists of three parts:

1) A Plant and Property grant to recognize individual physical characteristics and facilities of the colleges

2) An Activities grant to relate to the academic and administrative activities of the colleges

3) An Adult Occupational Training grant

An institution's Plant and Property grant is based on the institutional level of expenditures experienced in previous years. This basis avoids penalizing any institution which has more costly and less economically maintainable accommodation.

The Activities grant has two components: A formula component and a non-formula component. The formula component, that is, the part which finances continuing activities, is based on academic salaries directly relating to teaching. The non-formula component of the Activities grant is a portion of the "total pie" which is set aside to accommodate special circumstances. Its size is determined by the type and cost of the special circumstances. In any given year, growth could be considered a special circumstance, but the component is not specifically intended to accommodate growth. An example of a special circumstance which would be funded through this non-formula component of the Activities grant is the phasing-in of approved changes in the activities base for any given institution. A portion of the total operating grant is set aside to accommodate these special circumstances and the balance of the operating grant is distributed among the colleges, using the grant base mechanism. The formula portion of the Activities grant is calculated for each college on the basis of its share of the total academic salaries.

Adult Occupational Training (AOT) is funded through Canada Manpower's purchase of training days from Ontario. In the past, the scale of day rates included an element to cover plant and property costs. However, these expenses are now included in the single Plant and Property grant. The Activities grant base excludes salaries paid to instructors involved in the AOT program. The day rates paid to each college therefore are intended to cover the activities costs of the AOT program.

Implementation of the financing technique for the colleges necessitated the careful establishment of grant bases in each institution. A Grant Base Adjustment Panel was established to consider presentations from the colleges in respect of each college's grant bases. The Grant Base Adjustment Panel consists of Ministry representatives and one representative from each college. The representative of the plaintiff college is removed from the Panel during that college's presentation to ensure that the panel deliberations are fair and equitable. In addition to confirming the establishment of the initial bases, the Panel may also be required to review and evaluate major changes in any college's operation relating to facilities, enrolment patterns and programs from time to time.

2. Use of the Financing Technique

The plan was first implemented for the 1976-77 fiscal year, and the bases were calculated from the 1974-75 institutional financial statements with adjustments approved by the Grant Base Adjustment Panel. By nature, the Plant and Property grants do not require phased implementation because they are based on college's expenditures at the latest available reporting time. Implementation of the activities portion of the grant did require phasing. Only limited adjustments in the grants payable to any college could be made in any one year. No institution receives a grant below the funding level of the previous year. In addition, no institution receives a percentage increase less than 75% of the percentage increase in the total operating grant to all institutions. The remaining 25% of the increase in the total grant is shared under the activities base. These regulations attempt to maintain stability in funding levels. However, regulations regarding the redistribution of surpluses are intended to accelerate the shifts in the allocation towards the distribution shown by the formula. If any college carries a budgetary surplus larger than 10% of its annual revenue, the surplus must be depleted to the 10% level by 1977-78. Any college carrying a surplus beyond 25% of its annual revenue must deplete its surplus to less than 25% by 1977-78 and to the 10% level within three years thereafter. Moreover, expenditures from surpluses must be approved by the Ministry, and if the surplus is not depleted adequately within the time frame, the institution will be forced to refund the remaining funds, which will be added to the total to be distributed.

Reaction of the institutions to the financing technique has been generally favorable. The colleges are essentially pleased with the plan, the process of developing it, the negotiation of the bases and their resulting allocation for 1976-77. The split between the Activities grant and the Plant and Property grant was particularly well received. The only negative reaction is towards academic salaries being used as the basis for the Activities grant. The Ministry expects that total direct instructional expenditures would have been more favorably received as a base and the Ministry may move in that direction sometime in the future. The difficulty in using academic salaries as a base arises, particularly, because of the large range of ratios of salaries to other expense categories. For the time being, salaries will continue to be the base, but the Grant Base Adjustment Panel is still considering several problem areas and may suggest a revision towards total direct instructional expenditures as the base.

### 3. Application of the Formula with Alberta Data Base

The data base required for this application is essentially available from the financial statements of the Alberta universities and the Alberta public colleges. The application to the universities sector for the years 1974-75 and 1975-76 is shown in Table 5.8. Two variations of the application to the colleges sector are shown in Tables 5.9 and 5.10. The bases for the application are shown in Appendix U, Tables 11 and 12.

Variation 1 - The total grant distributed includes regular and program operating grants.

Variation 2 - The total grant distributed includes regular and program grants and Canada Manpower and Priority Employment Training funding.

## TABLE 5.8

## APPLICATION OF THE ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA TO THE UNIVERSITIES SECTOR[a]

($'000)

| INSTITUTION | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
|---|---|---|---|
| | 1974-75 | | |
| The University of Alberta | 58 791 | 59 462 | + 1.14 |
| The University of Calgary | 29 339 | 29 275 | - 0.22 |
| The University of Lethbridge | 5 709 | 5 102 | -10.63 |
| TOTAL SECTOR | 93 839 | 93 839 | |
| | 1975-76 | | |
| The University of Alberta | 75 467 | 75 955 | + 0.65 |
| The University of Calgary | 39 068 | 38 707 | - 0.92 |
| The University of Lethbridge | 7 032 | 6 905 | - 1.81 |
| TOTAL SECTOR | 121 567 | 121 567 | |

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[a] Excludes Faculties of Medicine--see Section A. c.

In addition, the financing technique was applied to the system of Alberta universities and public colleges for the same years, incorporating the assumptions related to Variation 2 for the colleges sector. The resulting grant distributions are shown in Table 5.11.

### 4. Evaluation of the Formula with Alberta Data Base

The purpose of this section is not to judge the application of the Ontario formula in Ontario. Instead, we list strengths and weaknesses of the application of the Ontario formula within the Alberta context, the constraints of the project guidelines, and Alberta data base capabilities.

## TABLE 5.9

## APPLICATION OF THE ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA TO THE COLLEGES SECTOR

($'000)

### VARIATION 1: REGULAR AND PROGRAM GRANTS[a]

| INSTITUTION | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
|---|---|---|---|
| | 1974-75 | | |
| Grande Prairie Regional College | 1 460 | 1 872 | +28.22 |
| Grant MacEwan Community College | 3 512 | 3 355 | - 4.47 |
| Lethbridge Community College | 2 112 | 2 409 | +14.06 |
| Medicine Hat College | 1 290 | 1 321 | + 2.40 |
| Mount Royal College | 5 402 | 4 826 | -10.66 |
| Red Deer College | 2 206 | 2 199 | - 0.32 |
| TOTAL SECTOR | 15 982 | 15 982 | |
| | 1975-76 | | |
| Grande Prairie Regional College | 2 047 | 2 650 | +29.46 |
| Grant MacEwan Community College | 5 007 | 4 364 | -12.84 |
| Lethbridge Community College | 2 850 | 3 313 | +16.25 |
| Medicine Hat College | 1 760 | 1 896 | + 7.73 |
| Mount Royal College | 7 274 | 6 483 | -10.87 |
| Red Deer College | 3 364 | 3 596 | + 6.90 |
| TOTAL SECTOR | 22 302 | 22 302 | |

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[a] Includes Industrial Education grants at Grande Prairie Regional College and Medicine Hat College.

## TABLE 5.10

## APPLICATION OF THE ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA TO THE COLLEGES SECTOR

($'000)

VARIATION 2: REGULAR AND PROGRAM GRANTS AND CANADA MANPOWER FUNDING[a]

| INSTITUTION | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
|---|---|---|---|
| | 1974-75 | | |
| Grande Prairie Regional College | 2 101 | 2 022 | - 3.76 |
| Grant MacEwan Community College | 3 512 | 3 661 | + 4.24 |
| Lethbridge Community College | 2 528 | 2 632 | + 4.11 |
| Medicine Hat College | 1 499 | 1 442 | - 3.80 |
| Mount Royal College | 5 402 | 5 271 | - 2.43 |
| Red Deer College | 2 398 | 2 412 | + 0.58 |
| TOTAL SECTOR | 17 440 | 17 440 | |
| | 1975-76 | | |
| Grande Prairie Regional College | 2 970 | 2 914 | - 1.89 |
| Grant MacEwan Community College | 5 007 | 4 813 | - 3.87 |
| Lethbridge Community College | 3 555 | 3 660 | + 2.95 |
| Medicine Hat College | 2 027 | 2 092 | + 3.21 |
| Mount Royal College | 7 274 | 7 152 | - 1.68 |
| Red Deer College | 3 792 | 3 994 | + 5.33 |
| TOTAL SECTOR | 24 625 | 24 625 | |

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[a] Also includes Priority Employment Training Program grants.

## TABLE 5.11

## APPLICATION OF THE ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA TO THE SYSTEM[a]

($'000)

| INSTITUTION/SECTOR | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
|---|---|---|---|
| | 1974-75 | | |
| UNIVERSITIES SECTOR[b] | | | |
| The University of Alberta | 58 791 | 59 268 | + 0.81 |
| The University of Calgary | 29 339 | 29 179 | - 0.55 |
| The University of Lethbridge | 5 709 | 5 086 | -10.91 |
| TOTAL UNIVERSITIES SECTOR | 93 839 | 93 533 | - 0.33 |
| COLLEGES SECTOR | | | |
| Grande Prairie Regional College | 2 101 | 2 054 | - 2.24 |
| Grant MacEwan Community College | 3 512 | 3 725 | + 6.06 |
| Lethbridge Community College | 2 528 | 2 679 | + 5.97 |
| Medicine Hat College | 1 499 | 1 467 | - 2.13 |
| Mount Royal College | 5 402 | 5 365 | - 0.68 |
| Red Deer College | 2 398 | 2 456 | + 2.42 |
| TOTAL COLLEGES SECTOR | 17 440 | 17 746 | + 1.75 |
| TOTAL SYSTEM | 111 279 | 111 279 | |
| | 1975-76 | | |
| UNIVERSITIES SECTOR[b] | | | |
| The University of Alberta | 75 467 | 76 056 | + 0.78 |
| The University of Calgary | 39 068 | 38 759 | - 0.79 |
| The University of Lethbridge | 7 032 | 6 914 | - 1.68 |
| TOTAL UNIVERSITIES SECTOR | 121 567 | 121 729 | + 0.13 |
| COLLEGES SECTOR | | | |
| Grande Prairie Regional College | 2 970 | 2 896 | - 2.49 |
| Grant MacEwan Community College | 5 007 | 4 781 | - 4.51 |
| Lethbridge Community College | 3 555 | 3 636 | + 2.28 |
| Medicine Hat College | 2 027 | 2 078 | + 2.52 |
| Mount Royal College | 7 274 | 7 106 | - 2.31 |
| Red Deer College | 3 792 | 3 966 | + 4.59 |
| TOTAL COLLEGES SECTOR | 24 625 | 24 463 | - 0.66 |
| TOTAL SYSTEM | 146 192 | 146 192 | |

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[a] Colleges Sector data as in Variation 2.

[b] Excludes Faculties of Medicine - see Section A. c.

The formula has the following strengths in the Alberta application:

1) It is a formula approach to college financing currently being used in a Canadian setting.

2) The formula utilizes routine information available in financial statements which will encourage improved comparability of this information.

3) The formula is not designed or intended for use as a basis for internal allocation nor as a spending pattern within an institution.

4) The formula recognizes the relationship among financial, academic and physical planning.

5) The formula is not based on the results of a program cost or institutional program outcomes study.

6) The formula does not encourage unnecessary proliferation of programs.

7) The absence of specific administrative funding is an incentive to promote administrative efficiency and to channel funds towards academic activities. This pattern is reinforced because academic activities expenditures in any given year influence college funding for the following years.

8) The formula provides a means for incorporating Canada Manpower and Priority Employment Training program funding into a comprehensive plan.

9) The financing technique makes no reference to outcomes. However, the overall financial plan (see Appendix C) includes a device for measuring outcomes because the government wants information to support accountable and proper use of public funds. This information also meets the colleges' needs for assurances that grant distributions are equitable and consistent.

The following are disadvantages of the financing technique as it applies to the Alberta system:

1) The plan is composed of one fixed and one variable component. The first call for funds is on the fixed component, that of plant and property expenses, and hence institutional flexibility is reduced because it may be in the interest of the institutions to keep their share of the fixed component large. Therefore, efficiency is not promoted.

2) The plan perpetuates relative historical injustices because it is directed towards maintaining the status quo.

3) It is counter to program budgeting philosophy in respect of certain expenditures, yet it does take a step towards program budgeting with PCS program 6.5 funded explicitly.

4) Enrolment growth is not recognized, except possibly, in the non-formula portion of the Activities grant. Therefore, the plan treats enrolment growth from a zero-based point of view which leaves the funding of enrolment growth open to negotiation. Therefore, the objectivity of this aspect of the funding is reduced.

5) The formula component of the Activities grant does not accommodate new policy considerations.

6) Administrative costs are assumed proportional to academic salaries. This is not necessarily a weakness if a fixed relationship is the intended policy. If so, autonomy is reduced and institutions are inclined to request additional funds for special circumstances.

7) The activities portion of the grant does not explicitly take into account economies of scale.

8) The ratios of support staff salaries and supplies expenses to academic salaries vary widely among institutions. Academic salaries therefore may not be considered representative of these expenses.

## 1. Collèges D'Enseignement Général et Professionnel - Quebec

Funding of Collèges D'Enseignement Général et Professionnel (Cegeps) in Quebec is through the Ministry of Education, Department of Finance. Funding is annual and the fiscal year is from July 1 to June 30. Grants to Cegeps for current expenses in 1972-73 exceeded $135 million.

### 1. Description of the Financing Technique[1]

The financing technique for budget requests can be classified as zero-based formula on the activities side of the ICLM. However, the allocation is the result of non-formula procedures including a series of negotiations with institutions ending in approval of budget submissions. The financing technique is expected to reflect the Ministry's operational goals and objectives set for the Cegeps and priorities of program activities as classified into a hierarchy of priorities. The technique is also in accordance with laws and regulations governing management and accounting procedures of the Cegeps.

Budget requests are submitted in functional groups as follows:

Group 1 - General Administration

Group 2 - a) Academic Salaries
- b) Other Expenses

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[1] Information for the Cegeps financing technique was obtained from the following sources: Ministère de l'Education, Régime Budgétaire et Financier des Collèges d'Enseignement Général et Professionnel - Année Scolaire 1975-76 (Quebec City, Quebec: Gouvernement du Québec, septembre 1975); Direction générale de l'Enseignement collégial, "Collèges d'Enseignement Général et Professionnel Politique Budgétaire - Exercice financier 1976-77" (Quebec City, Quebec, 14 janvier 1976); Ministère de l'Education, "Mécanismes d'Allocation des Ressources" (Quebec City, Quebec, 16 janvier 1976); Letter from Brian Ash Director General, Champlain Regional College, Sherbrooke, Quebec, 21 September 1976; Letter from Martin Desmeules, Directeur, Service des Ressources Matérielles et Financières, Gouvernement du Québec, Quebec City, Quebec, 22 October 1976.

Group 3 - Laboratories
Group 4 - Auxilliary Services
Group 5 - Student Services
Group 6 - Information Services
Group 7 - Transportation
Group 8 - Equipment
Group 9 - Plant and Maintenance
Group 10 - Short Term Loans

Budget approval is by group total. In principle, monies should not be transferred among groups. In practice, transfer between the groups is allowed up to a limit of 15%. Funds within groups can be spent at the discretion of college management.

Budget entitlement in each of the groups is calculated based on formulas that consist of a fixed and a variable component. The fixed component is established based on historical information and represents the funding for basic expenditures associated with the program activity. The variable component is usually based on rates per full-time student, representing marginal cost per student for enrolments exceeding a certain base number. This rate is a stepwise function of student enrolment totals. In addition to the fixed and variable component, there is a supplementary allocation which may be applied to any group with the exception of Group 2(a) and Groups 9 and 10. The basis of calculating the budget requirements for Group 9, Plant and Maintenance, is different. Instead of students, the basis is building areas. The Plant and Maintenance budget formula is, in essence, incremental. The allocation is that of the previous year plus a rate per square foot multiplied by the number of additional square feet of building area occupied by the Cegep. Group 10, Short Term Loans, by nature is a non-formula group.

2. Use of the Financing Technique

The process of preparing institutional budgets begins in October of the year prior to the budget year when norms and guidelines are issued by the Ministry of Education.[1] In February, operating and capital budget estimates are submitted to the Ministry. Institutional budgets are finalized during the last half of May, based on discussions between the institutions and the Ministry of Education. The internal breakdown of the budget takes place in June and the budget year begins July 1. Actual fall enrolments of the budget year are used to revise allocations if necessary.

Continuing education, summer school and Canada Manpower students are handled separately. A rate per full-time student is applied to continuing education students. This rate takes into account the student fees and is designed to cover expenses not recovered by fees. Canada Manpower students and funds are handled as in Alberta. In addition, Cegeps receive an amount per student-hour for summer school expenses. Summer school courses are allowed only if the number of students in a course is large enough to cover the teacher's salary.

The present financing technique for Cegeps is under review. The Ministry of Education is considering a change that would abandon the present formula system and introduce program budgeting as the basic methodology.

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[1] Ministère de l'Education, Régime Budgétaire et Financier des Collèges d'Enseignement Général et Professionnel - Année scolaire 1975-76 (Quebec City, Quebec: Gouvernement du Québec, septembre 1975).

## D. Observations on Formulas Used in Surveyed Jurisdictions

Evaluations of the formulas used in the surveyed jurisdictions are given in the previous sections. These evaluations show the strengths and weaknesses of the application of the formula as an allocation formula in the Alberta context within the project guidelines and the capabilities of the Alberta data base. A review of the project guidelines, the various issues and concerns reported in *Planning Paper One* and the reference group criteria, suggest a number of topics which are relevant to or addressed by the significant features of one or more of the formulas. In this section we will draw some general observations which pull together the numerous appropriate criteria and the corresponding interesting aspects of the formulas.

*Academic Excellence* - Pertinent recognition of institutional academic excellence, while deemed by some to be a desirable objective for certain financing techniques, is difficult to achieve through a formula. Excellence is not an easily definable nor readily measured characteristic. Nonetheless, of the surveyed jurisdictions, Texas recognizes academic excellence through an "institutional complexity factor" in the organized research program formula used in the budgeting process.

*Recognition of Level of Academic Program* - The level of academic program is easily reflected in the types and level of degrees offered. Mississippi universities, Ohio, Oklahoma, Colorado, Washington and Alberta universities reflect this consideration in the formula structure.

*Economies of Scale* - The possibility of economies of scale are acknowledged in the formulas for the Florida universities, Colorado, Texas and Cegeps. Classification of institutions for the purpose of appropriate recognition of economies of scale is a complex issue because the critical points at which marginal and average costs significantly diverge are different within various expenditure categories. For example, certain institutions, although different in size, could fall into the same classification in the instruction category. That is, average class size may not be sensitive to the size of the institution. However, expenditure categories like plant and maintenance may be sensitive to the size differences in these same institutions. Differentiation between fixed and incremental costs within expenditure categories is the method used to reflect economies of scale in Texas and Cegeps.

*Autonomy* - The level of disaggregation and detail of data required by an allocation formula tend to be associated with the level of control exercised by the funder. The survey of jurisdictions provides a good range of examples for both level of detail and the extent detailed data are used for control. The application of the Mississippi formula is an example of institutional autonomy being promoted even though formula calculations are detailed. The Mississippi instructional base calculation uses rates by discipline and level. The level of detail of the data base on which the formula is calculated or the institutional organizational level at which the financing technique is directed, are generally not indicators of State control.

In those jurisdictions where there is evidence of relatively autonomous management of institutions combined with detailed norms, indicators and formulas included in the system-wide financing technique, institutions still maintain the flexibility to transfer funds within the institution. In these instances the detailed base of formula calculation serves more the purpose of accountability than control. It seems that the authority inherent in autonomy brings with it the responsibility and the need for accountability. In any case, it is the application of the formula in the allocation process and not the nature of the formula which affects autonomy. The principle of block grants and the institutions' rights to reallocate resources within the institution can be maintained regardless of the nature of the formula.

*New Program Development* - New program development considerations are not part of the formula in surveyed jurisdictions. However, since formulas allocate a maximum of 90% of funds in any of the jurisdictions selected, there is always a portion of funds that can be used to accommodate elements which need special treatment.

*Inflation* - Inflationary considerations are incorporated in all formulas which use the rate or productivity ratio methods, providing the rates reflect budget year dollar values. If rates or salaries are those of a base year, separate adjustment for inflation is necessary.

*Revenues* - All jurisdictions which include budget requests in the funding procedure consider revenues/tuitions as part of the financing technique because revenues are part of the process of estimating funding needs. Different levels of information system development allow different means of sorting sources of funds into various expenditure programs. For example, Oklahoma balances expenditures in each discipline with estimated funds flowing into the discipline. Beyond the process of building the budget, the allocation process can take revenue estimates into account in two ways:

1) Net institutional need for funds is used as a basis for distribution

2) A normative portion of the institutional financial requirement is deemed to be covered by institutional revenues

An example of the latter practice occurs in the Mississippi universities where setting of such revenue norms is a component of the formula. Such formulas, coupled with the policy of allowing institutions to keep surpluses, promote efficiency in financial management.

*Program or Expense Categories* - Program or expense categories are explicitly treated in formulas in all surveyed jurisdictions except Alberta universities. The enrolment unit formula weights the outcomes unit, the student in an institution program category, without differentiating other primary or support program categories. The underlying assumption in Alberta is that "all other things are equal".

*Labor Negotiations* - Faculty and staff collective bargaining at the institutional level result in variations in institutional salary rates throughout the system. Productivity ratio formulas accommodate negotiated changes in salary rates if the formula uses institutional salaries and not system-wide rates. Colorado and Washington are jurisdictions using institutional salary rates in the budget formula. In allocation formulas using system-wide actual or policy salary rates, the results of labor negotiations can be recognized only in the size of the total allocation or in special grants outside the formula.

*Growth and Demand for Educational Services* - All formulas incorporating workload parameters inherently recognize growth and demand for educational services. Ontario CAATS is the only surveyed jurisdiction which does not specifically recognize workload indicators because of its intention to maintain steady state enrolments.

*Funding and Costs* - The relation of funding to cost is implied in formulas which set coefficients or policy parameters to reflect historical costs. Some jurisdictions use historical parameters while others rely on standards developed in other jurisdictions or on virtual costs.

*Information Systems* - Information systems supporting the formulas in the surveyed jurisdictions are in different stages of development. Those jurisdictions that have used complex formulas over long periods of time appear to have information systems that are more developed. Computerized institutional data bases are used in each surveyed United States jurisdiction because of the level of detail required to support the formulas (and for other State and Federal purposes). In addition, funding agencies in the United States also appear to require centralized data bases for administration of the formula. In Ohio and Colorado there is a direct computer interface between the centralized data base of the agency and the institutional data bases. Computerized data bases in surveyed Canadian jurisdictions are not directly related to the formula but have been developed independently for institutional administrative purposes.

## E. Development of Variations

The study of the various financing techniques in the surveyed jurisdictions allows us to proceed with the development of alternative formulas that are a synthesis of the ideas gained from this initial examination. We selected the jurisdictions so as to maximize the different types of practical formulas we would review while minimizing the redundancy of essentially equivalent formulas. The theoretical framework developed in the earlier chapters has been useful in this regard and suggests that we start the development of our variations by considering possibilities within the three algebraic structures; the rate formula, the category formula and the elementary model which is an expanded form of the productivity ratio formula. We will, therefore, develop these three classes of alternatives and follow the pattern of the previous sections of describing the formulas, applying the Alberta data base and evaluating that application.

One of the insights garnered from the survey that is useful for the purposes of generating viable alternatives, is that every formula recognizes instructional level. This feature accommodates the institutions' concern that variations in costs of instruction by level be recognized. Some formulas differentiate on the basis of student level, others on the level of courses taught or on a combination of these. A related concern is that costs vary by discipline. Many jurisdictions apply formulas at the discipline level, which accommodates the institutional concern and also the funder's interest in having the potential for policy input and influence at the discipline level. One significant disadvantage of formulas at this level of disaggregation is complexity. This criticism can be met in part by grouping disciplines.

Another insight from the survey is that formula applications are not limited to the instruction program, its associated activities and outcomes. Financing techniques in the jurisdictions include formulas which treat separately, various expenditure categories which relate to major institutional functional areas. These include, besides instruction and departmental research, other organized activities related to instruction, libraries, general administration expense, student services, organized research, public service and physical plant operation and maintenance. In our pursuit of viable alternative allocation formulas, emphasis will continue to be placed on the instruction program because one can more readily find acceptable and measurable variables or indicators, because instruction is the agreed primary program of all the institutions and the one which utilizes the major portion of institutional resources and finally, because the "all other things are equal" notion is familiar and accepted in Alberta. Still, the limitations that one agrees to accept by concentrating on instruction because of the various conceptual and data base problems which currently loom large, do not sit well when one is interested in teasing out practical alternatives which make the most of what existing technology and practice can provide. Thus, while concentrating on the instruction program, we would examine formulas which allow for, at least, potential development of more of a program approach. Actually, most surveyed jurisdictions separate the plant and maintenance category reflecting general concerns that the differences relating to size and physical facilities are not accommodated in the "all other things are equal" concept. Therefore, one of our alternatives moves away from this concept to illustrate the effects of treating the plant and maintenance program separately.

The productivity ratio formulas which are used in Florida, Washington, Colorado and proposed for Oregon are suggestive of the elementary model. The elementary model was augmented in *Planning Paper Two* (39) mainly by adding the additional variable of average faculty salary. This is parallel to the typical extension of the simple productivity ratio formula, by adding the average faculty salary factor. These ideas deserve further exploration in these variations because of the potential they possess to allow the allocation formula to move towards the structure of a simulation model. Evolution of the allocation formula towards a simulation model, opens the possibility of a shift of emphasis in the allocation process to one which is more analytical and comprehensive and hence less incremental. It also provides increased opportunity for developing the links between the allocation process and all system, sector, institutional planning, management and analysis, including the coordinated evolution of associated information systems.

The application of the surveyed financing techniques with the Alberta data base, points to a variety of weaknesses which are listed in the descriptions of the jurisdictions. Some of the weaknesses of the formulas are not definitional nor related to limitations of the data base, but are technique related and may be eliminated by introducing variations to the alternatives. These weaknesses will be avoided in the developed variations as follows:

1) Some formulas' dependence on cost studies is contrary to one of the guidelines of the project. Further variations considered are such that cost studies are not necessary.

2) Components of financing techniques in the jurisdictions which are directed towards finding total system resource requirements are not useful in the Alberta circumstance where allocation is the primary objective. Therefore variations in the formulas are directed towards calculation of *the allocation base*.

3) Financial planning data at the discipline detail is not readily available because projection of workload indicators by discipline assumes an advanced information system. Our remaining variations aggregate disciplines into groups in order to make more practical demands on the data base.

4) The concerns of the institutions that graduate supervision has not been recognized is accommodated in some variations by incorporating a graduate supervision component into the formulas.

5) The concern of institutions that all things are not proportional to the allocation base within the instruction category (for example, academic salaries are not necessarily representative of instructional expenditures) is taken into account by one variation which introduces direct instruction expenditures as the base.

6) Suggestions of the Enrolment Unit Weighting Committee, that weights used in the Alberta universities enrolment unit formula have an approximate relationship to costs and that the complexity of the weighting system be reduced are reflected in one variation in Appendix F.

## a. Rate Formula

### 1. Description of an Alternative Methodology

Allocation to institutions using a rate formula is made, at least in part, on the basis of the product of a rate and the value(s) of a parameter which is an activities or outcomes measure. Since this methodology is a variation on the Mississippi formula, it is on the activities side of the ICLM. The fundamental formula is:

Instruction Base (\$) = CE x \$/CE

Where: CE - are course enrolees taught at the institution

\$/CE - the system or sector rate, in this case, the average net teaching departmental expense per course enrolee

The instructional base is the amount that each institution would be assigned, on the basis of the course enrolees taughts, if compensation was at the average expense calculated by dividing all departmental net expenses in all institutions by course enrolees taught in all institutions in a year. An institution participates in the total grant in proportion to the share its instructional base is of the system instructional base in the budget year. Thus, the CE is typically a budget year figure projected (or otherwise agreed) for each institution whereas the rate ($/CE) is a system (sector) average for a base year. The base year may be the current year (if suitable data are available at the time the budget allocation is made) or the previous year for which audited data are more likely available. Alternatively the rate may be set by the funder as a policy.

The specific methodology described in this section attempts to take advantage of the detailed information available from Alberta universities. Hence, institutional course enrolees, the base factor, are aggregated by instruction level and discipline group. Thus, the rate is not a number but a matrix of sector rates with an element for each instruction level and discipline group. The calculated instructional base is the sum of each projected (budget) number of course enrolees by level and discipline group times the corresponding sector average rate.

Calculation of the elements of the rate matrix requires that net teaching department expenses be assigned and summed sector wide by instruction level for each discipline group. In this variation, we follow the Mississippi application assumption that the cost of teaching a section hour is not influenced by the instruction level of the course. Hence, departmental net expenses are aggregated by discipline group and assigned to instruction levels in proportion to the number of section hours taught in each level. There is one further complication. To take into account the resource requirements for graduate student supervision (non-coursified instruction), faculty time spent on graduate student supervision is used to augment the number of section hours at the graduate level. This is accomplished by the calculation of additional graduate section hours based on the number and level of graduate students to be supervised. Hence, the elements of the rate matrix are simply the ratios of the net teaching department expense assigned to each level in a discipline group to the corresponding course enrolees taught in each level and discipline group.

2. Application of the Rate Formula with Alberta Data Base

Table 5.12 shows the results of applying this financing technique to Alberta universities data for the years 1972-73 through 1974-75, maintaining the Mississippi practice of separating institutions into groups according to the level of degree granted. Hence, The University of Alberta and The University of Calgary are in one group and The University of Lethbridge is in another group. Two variations in level of aggregation are shown:

Variation 1, Macro by Course Level - Formula variables are institutional course enrolees and sector rates per course enrolee separted into three levels of instruction: Lower undergraduate, upper undergraduate and graduate.

Variation 2, Discipline Groups and Level - Formula variables are institutional course enrolees and sector rates per course enrolee separated into three levels of instruction and discipline groups.

Table 5.13 shows the grant distribution resulting from applying average rates per course enrolee for The University of Alberta and The University of Calgary to course enrolees at The University of Lethbridge. That is, the institutions are no longer separated into two groups. Because The University of Lethbridge appears to be at a disadvantage in this application, a multiplier of 2.25 is applied in order to shift the distribution towards the actual.

Additional detailed data including the rates and instructional bases

## TABLE 5.12

## APPLICATION OF THE RATE FORMULA TO THE UNIVERSITIES SECTOR[a] (INSTITUTIONAL GROUP III RATES APPLIED TO THE UNIVERSITY OF LETHBRIDGE)

($'000)

| INSTITUTION | 1972-73 | | | 1973-74 | | | 1974-75 | | |
|---|---|---|---|---|---|---|---|---|---|
| | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
| **VARIATION 1: MACRO BY LEVEL** | | | | | | | | | |
| The University of Alberta | 50 658 | 52 365 | + 3.37 | 54 224 | 56 214 | + 3.67 | 58 791 | 61 599 | + 4.78 |
| The University of Calgary | 25 587 | 24 779 | - 3.16 | 27 382 | 26 236 | - 4.19 | 29 339 | 27 780 | - 5.31 |
| The University of Lethbridge | 4 705 | 3 806 | -19.11 | 5 095 | 4 251 | -16.57 | 5 709 | 4 460 | -21.88 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| **VARIATION 2: LEVEL AND DISCIPLINE GROUP** | | | | | | | | | |
| The University of Alberta | 50 658 | 53 805 | + 6.21 | 54 224 | 57 667 | + 6.35 | 58 791 | 63 026 | + 7.20 |
| The University of Calgary | 25 587 | 23 339 | - 8.79 | 27 382 | 24 784 | - 9.49 | 29 339 | 26 356 | -10.17 |
| The University of Lethbridge | 4 705 | 3 806 | -19.11 | 5 095 | 4 250 | -16.58 | 5 709 | 4 457 | -21.93 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |

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[a] Excludes Faculties of Medicine--see Section A. 6.

## TABLE 5.13

## APPLICATION OF THE RATE FORMULA TO THE UNIVERSITIES SECTOR[a] (INSTITUTIONAL GROUP I RATES AND A MULTIPLIER APPLIED TO THE UNIVERSITY OF LETHBRIDGE)

($'000)

| INSTITUTION | 1972-73 | | | 1973-74 | | | 1974-75 | | |
|---|---|---|---|---|---|---|---|---|---|
| | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
| **VARIATION 1: MACRO BY LEVEL** | | | | | | | | | |
| The University of Alberta | 50 658 | 51 361 | + 1.39 | 54 224 | 55 355 | + 2.09 | 58 791 | 60 722 | + 3.28 |
| The University of Calgary | 25 587 | 24 305 | - 5.01 | 27 382 | 25 835 | - 5.65 | 29 339 | 27 385 | - 6.66 |
| The University of Lethbridge | 4 705 | 5 284 | +12.31 | 5 095 | 5 511 | + 8.16 | 5 709 | 5 732 | + 0.40 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| **VARIATION 2: LEVEL AND DISCIPLINE GROUP** | | | | | | | | | |
| The University of Alberta | 50 658 | 53 335 | + 5.28 | 54 224 | 57 349 | + 5.76 | 58 791 | 62 692 | + 6.64 |
| The University of Calgary | 25 587 | 23 135 | - 9.58 | 27 382 | 24 647 | - 9.99 | 29 339 | 26 216 | -10.64 |
| The University of Lethbridge | 4 705 | 4 480 | - 4.78 | 5 095 | 4 705 | - 7.65 | 5 709 | 4 931 | -13.63 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |

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[a] Excludes Faculties of Medicine--see Section A. 6.

are shown in Appendix U, Tables 13 to 16. Course enrolee data are given in *Planning Paper Two*.

Application of this rate formula to Alberta public colleges data is not possible, except at the macro institutional level of aggregation. This application would therefore duplicate the grant distribution derived on the basis of course enrolees by institution, which is shown in *Planning Paper Three*.

### 3. Evaluation of the Rate Formula

The strengths of this alternative are:

1) The rate formula methodology relies on net expense data for faculties and schools by teaching department as shown in institutional financial statements.

2) The rate formula is based on routinely available course load data and does not require faculty activity analysis or other cost study information.

3) The methodology differentiates between levels of instruction.

4) The formula illustrated incorporates activities which make distributions dependent on graduate student supervision costs.

5) The rates may be varied according to policy input.

Possible weaknesses are:

1) The calculation of the instructional base may be greatly influenced by institutional variations in accounting practices (see strength 1).

2) The formula requires data not available from Alberta public colleges.

On the basis of the numerous test applications of rate formulas, it is evident that the match between the Alberta data base and any rate formula is such that the historical grant distribution would not be closely approximated by any simple rate formula application. However, we have learned much about the practical limitations of the data base and the patterns of distribution which typically result from rate formulas. Thus, while a rate formula alone may not be a suitable means component for an acceptable financing technique, its characteristics should be kept in mind if a more complex amalgam of formulas proves practical.

## b. Category Formula

### 1. Description of an Alternative Methodology

Allocations to institutions using the category formula method are typically made partly on the basis of a percentage of a base which is a function of the value of base factors. Category formulas may be applied with base factors on the activities or outcomes side of the ICLM.

Since this test formula is a variation on the Colleges of Applied Arts and Technology's methodology, it is on the activities side of the ICLM. The method uses two bases - one representing fixed costs and one representing variable costs. An institution's allocation can be expressed in formula form as follows:

Institutional Allocation = Percent of Fixed Base x Fixed Component of System or Sector Grant + Percent of Variable Base x Variable Component of System or Sector Grant

An institution shares in the fixed grant component in proportion to its share of the total fixed base for the system or sector. Similarly, an institution shares in the variable grant component in proportion to its share of the total variable base. The base year may be the current year if suitable data are available at the time the budget allocation is made or the previous year if audited data are used.

The specific methodology described in this section uses data from financial statements for Alberta universities and public colleges. It is one of the few methodologies which can be applied to public colleges for a number of years.

The philosophy underlying the separation of the fixed and variable grants is that some costs are related to historically established institutional characteristics and are therefore not subject to significant variations in the level of activity in primary programs. An example of the basis for the fixed grant is plant and property expenses. Other costs which are reflected in a variable grant are closely related to the level of institutional activity in primary programs. Examples of bases for the variable grant are academic salaries, because they represent a large portion of expenses related to activities in the primary programs, or total direct instructional expenditures which incorporate expenses related to all primary programs.

### 2. Application of the Category Formula with Alberta Data Base

Table 5.14 shows the results of applying this category formula to Alberta universities and public colleges data for two years, 1974-75 and 1975-76. The fixed base is system plant and property expense of the base year; the variable base is system direct instructional expenditure in the base year. Appendix U, Table 17 shows the fixed and variable bases.

### 3. Evaluation of the Formula with Alberta Data Base

The evaluation of the Colleges of Applied Arts and Technology's financing technique lists weaknesses which cannot be eliminated through changing the fixed and variable bases.

TABLE 5.14

APPLICATION OF THE CATEGORY FORMULA
TO THE SYSTEM[a]

($'000)

| INSTITUTION/SECTOR | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
|---|---|---|---|
| | 1974-75 | | |
| UNIVERSITIES SECTOR | | | |
| The University of Alberta | 58 791 | 62 697 | + 6.64 |
| The University of Calgary | 29 339 | 28 831 | - 1.73 |
| The University of Lethbridge | 5 709 | 4 700 | -17.67 |
| TOTAL UNIVERSITIES SECTOR | 93 839 | 96 228 | + 2.55 |
| COLLEGES SECTOR | | | |
| Grande Prairie Regional College | 2 101 | 1 943 | + 7.52 |
| Grant MacEwan Community College | 3 512 | 3 483 | - 0.83 |
| Lethbridge Community College | 2 528 | 2 152 | -14.87 |
| Medicine Hat College | 1 499 | 1 028 | -31.42 |
| Mount Royal College | 5 402 | 4 460 | -17.44 |
| Red Deer College | 2 398 | 1 985 | -17.22 |
| TOTAL COLLEGES SECTOR | 17 440 | 15 051 | -13.70 |
| TOTAL SYSTEM | 111 279 | 111 279 | |
| | 1975-76 | | |
| UNIVERSITIES SECTOR | | | |
| The University of Alberta | 75 467 | 80 163 | + 6.22 |
| The University of Calgary | 39 068 | 38 468 | - 1.54 |
| The University of Lethbridge | 7 032 | 6 567 | - 6.61 |
| TOTAL UNIVERSITIES SECTOR | 121 567 | 125 198 | + 2.99 |
| COLLEGES SECTOR | | | |
| Grande Prairie Regional College | 2 970 | 2 753 | - 7.31 |
| Grant MacEwan Community College | 5 007 | 4 954 | - 1.06 |
| Lethbridge Community College | 3 555 | 2 847 | -19.92 |
| Medicine Hat College | 2 027 | 1 427 | -29.60 |
| Mount Royal College | 7 274 | 5 843 | -19.67 |
| Red Deer College | 3 792 | 3 170 | -16.40 |
| TOTAL COLLEGES SECTOR | 24 625 | 20 994 | -14.75 |
| TOTAL SYSTEM | 146 192 | 146 192 | |

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[a] Excludes Faculties of Medicine--see Section A. c. Colleges figures include regular and program grants, and Canada Manpower and Priority Employment Training Program funding.

This application was designed to eliminate the concern that the ratios of support staff salaries and supplies expenses to academic salaries vary widely among institutions. Hence, total direct instructional expenditures are used as the variable base. Grant distributions resulting from the test variation are displayed in Table 5.14 and do not reflect these intended improvements. This is because the data in financial statements used to provide numerical values for the base factors are not comparable among institutions nor between sectors.

Since in any practical application, it is the combination of the formula and its supporting data base which must be judged, one must conclude that the application shown in Table 5.11 is the most useful. In the first place, there is remarkably little "flow" between the sectors, that is, the sector totals for actual and derived grants are very close. Also, the detailed distributions to each institution are remarkably close considering the numerous other test applications we have examined. Thus, in terms of our search for a financing technique which matches actual and derived grants, the CAAT's methodology must be given serious consideration as an element of the financial plan we seek.

## c. The Elementary Model

### 1. Description of the Financing Technique

The elementary model of the instruction process introduced in *Planning Paper Two* (34), permits interrelation of various measures used to quantify instruction. It illustrates the relationship between the number of full-time equivalent teaching staff (FTE) or faculty, the average class size and the average faculty teaching load. This relationship can be expressed as:

$$\text{Number of Faculty} = \frac{\text{Weekly Student Hours}}{\text{Average Class Size} \times \text{Average Faculty Load}}$$

Because this equation relates basic policy variables of the instruction process to the faculty requirement for instruction, the elementary model is an expanded form of an allocation formula we have classified as a productivity ratio formula - weekly student hours per full-time equivalent faculty. This version of the elementary model of the instruction process is interesting because it shows one of the few inherent relationships among variables for which we have Alberta universities data. In addition, weekly student hour data are available for the public colleges. The algebraic expression ties together policy variables which, for any teaching unit, institution, sector or system, are indicative of academic and financial policies and procedures. Even in its most aggregate form, the formula allows the user to think in terms of some of the most fundamental planning and management questions. In words, the formula says that staff requirements for an instructional program increase as student loads increase, as average class section sizes decrease and as teaching loads are reduced.

In respect of allocation of public funds among institutions, average faculty salaries are of interest as factors in the calculation of various cost elements or indices. If both sides of the elementary model equation are multiplied by the average faculty salary, we have: The following expression called the fundamental cost model.[1]

$$\text{Faculty Salary Expense} = \frac{\text{Weekly Student Hours} \times \text{Average Faculty Salary}}{\text{Average Class Size} \times \text{Average Faculty Load}}$$

To the extent that the faculty salary component of expense is, for sector financial planning, a good proxy for institutional resource utilization as a function of certain exogenous or independent variables (course enrolees or weekly student hours by discipline and level) it is indicative of deployment of the faculty resource according to academic and financial policy.

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[1] Bernard S. Sheehan and Warren W. Gulko, "The Fundamental Cost Model", in: Thomas R. Mason, ed., Assessing Computer-Based Systems Models, Number 9 of New Directions for Institutional Research (San Francisco: Jossey-Bass, 1976).

Multiplication by average faculty salary assumes that faculty members involved in the instruction program described by the elementary model are not involved in other institutional programs. This is not the typical case. Hence, if "faculty salary expense" is to represent the true faculty salary expense for the instruction program described by the elementary model, average faculty salary must be reduced to that portion which may be attributed to the instruction program quantified by the elementary model or for which the elementary model is taken as proxy. We will refer to the factor as relative faculty effort for the instruction program and note its application as follows:

$$\begin{array}{l}\text{Faculty Salary}\\ \text{Expense for}\\ \text{Instruction}\\ \text{Program}\end{array} = \frac{\begin{array}{c}\text{Weekly}\\ \text{Student}\\ \text{Hours}\end{array} \times \begin{array}{c}\text{Relative}\\ \text{Faculty}\\ \text{Effort}\end{array} \times \begin{array}{c}\text{Average}\\ \text{Faculty}\\ \text{Salary}\end{array}}{\begin{array}{c}\text{Average}\\ \text{Class Size}\end{array} \times \begin{array}{c}\text{Average}\\ \text{Faculty Load}\end{array}}$$

Relative faculty effort for Alberta universities and public colleges is not part of the Alberta data base. The cost studies performed at The University of Alberta and The University of Calgary included faculty activity analysis which provides some information which was used in these studies to apportion costs. Similarly, the early cost studies at some of the public colleges were concerned with faculty activity analysis and more recently Joyce Robinson[1] has compiled data which are indicative of relative faculty effort. While all this information (and similar data from other jurisdictions) provides a ballpark estimate for relative faculty effort at the system and sector level, these estimates do not have the credibility necessary to improve on our "all other things are equal" assumption. Any formula which depends on relative faculty effort, would have to rest on faculty activity information which was part of the regular Alberta data base. Except for the Alberta Association of College Faculties study, there is little evidence that institutions will soon add faculty activity analysis information to the regular data base. However, the possibility always exists that the funder may use normative values for relative faculty effort as a policy variable value in an elementary model type allocation formula.

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[1] M. J. Robinson, "Report on the Characteristics and Activities of Public College Faculty in Alberta, Winter 1976", A report prepared for the Alberta Association of College Faculties (Calgary, Alberta, Winter 1976).

### 2. Application of the Elementary Model with Alberta Universities Data Base

The elementary model is applied to the Alberta universities data base for three years, 1972-73 through 1974-75.

If elementary model FTE were used for the basis of allocation in a budget year the application would require determination of the policy variables. This may involve setting, or in other words, making a policy decision on the province-wide numerical value (for funding purposes) of average class sizes and average faculty load. If there is to be no change in these policies, the numerical values would be the base year values. The variable, weekly student hours, would be projected (or set by policy for each institution). If the student load is projected, the typical method would be to multiply the approved (budgeted) student numbers by the appropriate ICLM which yields weekly student hours (or other suitable load parameters).

The following applications are designed to illustrate the effect on the distribution of grants using actual data for the years tested. The applications do not indicate changes that might result from various projection methodologies. Such variations in grant distributions would be proportional to discrepancies between projected student enrolments and those which eventually are realized by an institution. The percentage change between the actual grants and the derived grant distribution in the applications is caused primarily by accumulative effects of differences between the values of sector normative parameters and corresponding institutional data element numerical values.

The following applications illustrate the effect on grant distributions of various levels of detail at which the model is applied and various assumptions regarding the measures of student load. Appendix U, Tables 18, 19 and 20 show the formula FTE generated in each variation.

i. Variations Using Weekly Student Hours as Student Load -- In these variations the elementary model takes the form: Formula full-time equivalent faculty ($FTE_a$) at institution 'a' equals weekly student hours (WSH) for that institution divided by the sector average class size (ACS) and average faculty load (AFL) at various levels of aggregation. That is:

$$FTE_a = \frac{WSH_a}{ACS \times AFL}$$

An institution's share of the total grant is in proportion to its formula FTE faculty. Table 5.15 shows derived grant distributions for three variations for the years 1972-73 through 1974-75.

Variation 1, Macro - Formula variables are total weekly student hours for each institution and sector average class size and average faculty load.

## TABLE 5.15

## APPLICATION OF THE ELEMENTARY MODEL TO THE UNIVERSITIES SECTOR[a] WEEKLY STUDENT HOURS AS THE STUDENT LOAD MEASURE

($'000)

| | 1972-73 | | | 1973-74 | | | 1974-75 | | |
|---|---|---|---|---|---|---|---|---|---|
| INSTITUTION | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
| **VARIATION 1: MACRO** | | | | | | | | | |
| The University of Alberta | 50 658 | 50 252 | - 0.80 | 54 224 | 53 175 | - 1.93 | 58 791 | 59 789 | + 1.70 |
| The University of Calgary | 25 587 | 27 707 | + 8.29 | 27 382 | 30 303 | +10.67 | 29 339 | 30 564 | + 4.18 |
| The University of Lethbridge | 4 705 | 2 991 | -36.43 | 5 095 | 3 223 | -36.74 | 5 709 | 3 486 | -38.94 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| **VARIATION 2: LEVEL** | | | | | | | | | |
| The University of Alberta | 50 658 | 51 757 | + 2.17 | 54 224 | 54 106 | - 0.22 | 58 791 | 60 451 | + 2.82 |
| The University of Calgary | 25 587 | 26 735 | + 4.49 | 27 382 | 29 971 | + 9.46 | 29 339 | 30 622 | + 4.37 |
| The University of Lethbridge | 4 705 | 2 458 | -47.76 | 5 095 | 2 624 | -48.50 | 5 709 | 2 766 | -51.55 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| **VARIATION 3: LEVEL AND DISCIPLINE GROUP** | | | | | | | | | |
| The University of Alberta | 50 658 | 51 945 | + 2.54 | 54 224 | 54 287 | + 0.12 | 58 791 | 60 781 | + 3.38 |
| The University of Calgary | 25 587 | 26 693 | + 4.32 | 27 382 | 29 917 | + 9.26 | 29 339 | 30 422 | + 3.69 |
| The University of Lethbridge | 4 705 | 2 312 | -50.86 | 5 095 | 2 497 | -50.99 | 5 709 | 2 636 | -53.83 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| **VARIATION 4: LEVEL AND DISCIPLINE GROUP INCLUDING GRADUATE SUPERVISION** | | | | | | | | | |
| The University of Alberta | 50 658 | 52 784 | + 4.20 | 54 224 | 55 244 | + 1.88 | 58 791 | 61 368 | + 4.38 |
| The University of Calgary | 25 587 | 26 168 | + 2.27 | 27 382 | 29 266 | + 6.88 | 29 339 | 30 144 | + 2.74 |
| The University of Lethbridge | 4 705 | 1 998 | -57.53 | 5 095 | 2 191 | -57.00 | 5 709 | 2 327 | -59.24 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |

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[a] Excludes Faculties of Medicine--see Section A. C.

Variation 2, Level of Instruction - Formula variables are institutional weekly student hours and sector average class size separated into three levels of instruction: Lower undergraduate, upper undergraduate and graduate. Average faculty load is the sector average for all levels since information necessary to generate AFL data by level is not available.

Variation 3, Level and Discipline Group - Formula variables are institutional weekly student hours and sector average class size separated into three levels of instruction and twenty discipline groups. Average faculty load is the sector average within the discipline group. Weekly student hours by discipline group and level are shown in *Planning Paper Three*.

ii. Variations Incorporating Graduate Supervision -- In order to incorporate graduate supervision into the allocation formula, the elementary model is augmented as follows:

$$FTE_a = \frac{WSH_a}{ACS \times AFL} + \frac{GS_a}{AFL}$$

The variable $GS_a$ is the number of graduate students multiplied by weights which are taken as the section hour instructional equivalent of graduate supervision. The weights chosen for these applications are:

| | |
|---|---|
| Full-time Masters and Lower Doctoral Students | 1.0 |
| Full-time Upper Doctoral Students | 1.5 |
| Part-time Students | 1/3 of appropriate weight |

Table 5.15, Variation 4 shows derived grant distributions incorporating graduate supervision into Variation 3.

iii. Variations Using Course Enrolees as Student Load -- Weekly student hours as the institutional measure of student load allows the elementary model to take into account differences in institutional teaching practice in a way that influences institutional funding. These institutional differences in instruction practice are ignored when the funding formula uses course enrolees as the measure of student load. In this latter case it is necessary to introduce a sector parameter, weekly student hours per course enrolee[1], to maintain the integrity of the elementary model, that is:

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[1] Weekly student hours per course enrolee (WSH/CE) is the system average number of weekly hours per course.

$$FTE_a = \frac{CE_a \times WSH/CE}{ACS \times AFL} + \frac{GS_a}{AFL}$$

This version of the elementary model is illustrated in Table 5.16 in the same four variations.

### TABLE 5.16

### APPLICATION OF THE ELEMENTARY MODEL TO THE UNIVERSITIES SECTOR[a] COURSE ENROLEES AS THE STUDENT LOAD MEASURE

($'000)

| INSTITUTION | 1972-73 ACTUAL GRANT | 1972-73 DERIVED GRANT | 1972-73 PERCENTAGE CHANGE | 1973-74 ACTUAL GRANT | 1973-74 DERIVED GRANT | 1973-74 PERCENTAGE CHANGE | 1974-75 ACTUAL GRANT | 1974-75 DERIVED GRANT | 1974-75 PERCENTAGE CHANGE |
|---|---|---|---|---|---|---|---|---|---|
| VARIATION 1: MACRO | | | | | | | | | |
| The University of Alberta | 50 658 | 51 612 | + 1.88 | 54 224 | 55 451 | + 2.26 | 58 791 | 61 300 | + 4.27 |
| The University of Calgary | 25 587 | 26 071 | + 1.89 | 27 382 | 27 800 | + 1.53 | 29 339 | 28 858 | - 1.64 |
| The University of Lethbridge | 4 705 | 3 267 | -30.56 | 5 095 | 3 450 | -32.29 | 5 709 | 3 681 | -35.52 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| VARIATION 2: LEVEL | | | | | | | | | |
| The University of Alberta | 50 658 | 52 533 | + 3.70 | 54 224 | 56 599 | + 4.38 | 58 791 | 62 295 | + 5.96 |
| The University of Calgary | 25 587 | 25 640 | + 0.21 | 27 382 | 27 243 | - 0.51 | 29 339 | 28 589 | - 2.56 |
| The University of Lethbridge | 4 705 | 2 777 | -40.98 | 5 095 | 2 859 | -43.89 | 5 709 | 2 955 | -48.24 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| VARIATION 3: LEVEL AND DISCIPLINE GROUP | | | | | | | | | |
| The University of Alberta | 50 658 | 52 958 | + 4.54 | 54 224 | 56 643 | + 4.46 | 58 791 | 62 585 | + 6.45 |
| The University of Calgary | 25 587 | 25 488 | - 0.39 | 27 382 | 27 486 | + 0.38 | 29 339 | 28 584 | - 2.57 |
| The University of Lethbridge | 4 705 | 2 504 | -46.78 | 5 095 | 2 572 | -49.52 | 5 709 | 2 670 | -53.23 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| VARIATION 4: LEVEL AND DISCIPLINE GROUP INCLUDING GRADUATE SUPERVISION | | | | | | | | | |
| The University of Alberta | 50 658 | 53 660 | + 5.93 | 54 224 | 57 312 | + 5.69 | 58 791 | 62 958 | + 7.09 |
| The University of Calgary | 25 587 | 25 126 | - 1.80 | 27 382 | 27 132 | - 0.91 | 29 339 | 28 524 | - 2.78 |
| The University of Lethbridge | 4 705 | 2 164 | -54.01 | 5 095 | 2 257 | -55.70 | 5 709 | 2 357 | -58.71 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |

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[a] Excludes Faculties of Medicine--see Section A. c.

iv. Variations Including Multipliers for The University of Lethbridge -- The results show that using sector-wide productivity ratios which of course are heavily biased by The University of Alberta and The University of Calgary data, The University of Lethbridge derived grants are significantly below actuals. The University of Lethbridge is disadvantaged by a formula using sector-wide ratios or norms. For the purposes of the application, various multipliers were tried to augment The University of Lethbridge allocation. A multiplier of 1.60 brings the distribution closest to that of the actual distribution (see Table 5.17 and Table 5.18).

3. Application of the Elementary Model with Public Colleges Data Base

Weekly student hours for the public colleges are available only for 1975-76. The numerical values for the policy parameters, average class sizes and average faculty load, are not available. The applications test the distribution under two policies: The colleges sector parameters equal the universities sector average in the lower level, and The University of Lethbridge lower level parameters are taken as sector averages. Table 5.19 shows the resulting grant distributions using weekly student hours as the measure of student load.

As with the many other examples which use sector or system averages, the individuality of the institutions forces derived grants to differ substantially from the actual grant pattern. In order to move derived distributions closer to actuals, one would need to use institutional factors in the elementary model rather than multi-institutional norms. We will consider the practicality of this variation next.

4. Application of the Elementary Model System-wide

As noted above, in this test we would like to use the elementary model

## TABLE 5.17

## APPLICATION OF THE ELEMENTARY MODEL TO THE UNIVERSITIES SECTOR[a] WEEKLY STUDENT HOURS AS THE STUDENT LOAD MEASURE INCORPORATING THE UNIVERSITY OF LETHBRIDGE MULTIPLIER

($'000)

| | 1972-73 | | | 1973-74 | | | 1974-75 | | |
|---|---|---|---|---|---|---|---|---|---|
| INSTITUTION | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
| **VARIATION 1: MACRO** | | | | | | | | | |
| The University of Alberta | 50 658 | 49 162 | - 2.95 | 54 224 | 52 014 | - 4.08 | 58 791 | 58 486 | - 0.52 |
| The University of Calgary | 25 587 | 27 106 | + 5.94 | 27 382 | 29 641 | + 8.25 | 29 339 | 29 898 | + 1.91 |
| The University of Lethbridge | 4 705 | 4 682 | - 0.49 | 5 095 | 5 046 | - 0.96 | 5 709 | 5 455 | - 4.45 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| **VARIATION 2: LEVEL** | | | | | | | | | |
| The University of Alberta | 50 658 | 50 831 | + 0.34 | 54 224 | 53 142 | - 2.00 | 58 791 | 59 401 | + 1.04 |
| The University of Calgary | 25 587 | 26 257 | + 2.62 | 27 382 | 29 437 | + 7.50 | 29 339 | 30 090 | + 2.56 |
| The University of Lethbridge | 4 705 | 3 862 | -17.92 | 5 095 | 4 122 | -19.10 | 5 709 | 4 348 | -23.84 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| **VARIATION 3: LEVEL AND DISCIPLINE GROUP** | | | | | | | | | |
| The University of Alberta | 50 658 | 51 069 | + 0.81 | 54 224 | 53 365 | - 1.58 | 58 791 | 59 774 | + 1.67 |
| The University of Calgary | 25 587 | 25 243 | + 2.56 | 27 382 | 29 410 | + 7.41 | 29 339 | 29 918 | + 1.97 |
| The University of Lethbridge | 4 705 | 3 638 | -22.68 | 5 095 | 3 926 | -22.94 | 5 709 | 4 147 | -27.36 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| **VARIATION 4: LEVEL AND DISCIPLINE GROUP INCLUDING GRADUATE SUPERVISION** | | | | | | | | | |
| The University of Alberta | 50 658 | 52 013 | + 2.67 | 54 224 | 54 419 | + 0.36 | 58 791 | 60 469 | + 2.85 |
| The University of Calgary | 25 587 | 25 786 | + 0.78 | 27 382 | 28 829 | + 5.28 | 29 339 | 29 702 | + 1.24 |
| The University of Lethbridge | 4 705 | 3 151 | -33.03 | 5 095 | 3 453 | -32.23 | 5 709 | 3 668 | -35.75 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |

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[a] Excludes Faculties of Medicine--see Section A. c.

## TABLE 5.18

## APPLICATION OF THE ELEMENTARY MODEL TO THE UNIVERSITIES SECTOR[a]<br>COURSE ENROLEES AS THE STUDENT LOAD MEASURE<br>INCORPORATING THE UNIVERSITY OF LETHBRIDGE MULTIPLIER

($'000)

| | 1972-73 | | | 1973-74 | | | 1974-75 | | |
|---|---|---|---|---|---|---|---|---|---|
| INSTITUTION | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
| VARIATION 1: MACRO | | | | | | | | | |
| The University of Alberta | 50 658 | 50 392 | - 0.53 | 54 224 | 54 157 | - 0.12 | 58 791 | 59 891 | + 1.87 |
| The University of Calgary | 25 587 | 25 455 | - 0.52 | 27 382 | 27 151 | - 0.84 | 29 339 | 28 195 | - 3.90 |
| The University of Lethbridge | 4 705 | 5 103 | + 8.46 | 5 095 | 5 393 | + 5.85 | 5 709 | 5 753 | + 0.77 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| VARIATION 2: LEVEL | | | | | | | | | |
| The University of Alberta | 50 658 | 51 474 | + 1.61 | 54 224 | 55 500 | + 2.35 | 58 791 | 61 140 | + 4.00 |
| The University of Calgary | 25 587 | 25 122 | - 1.82 | 27 382 | 26 715 | - 2.44 | 29 339 | 28 059 | - 4.36 |
| The University of Lethbridge | 4 705 | 4 354 | - 7.46 | 5 095 | 4 486 | -11.95 | 5 709 | 4 640 | -18.72 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| VARIATION 3: LEVEL AND DISCIPLINE GROUP | | | | | | | | | |
| The University of Alberta | 50 658 | 51 994 | + 2.64 | 54 224 | 55 652 | + 2.63 | 58 791 | 61 535 | + 4.67 |
| The University of Calgary | 25 587 | 25 024 | - 2.20 | 27 382 | 27 006 | - 1.37 | 29 339 | 28 104 | - 4.21 |
| The University of Lethbridge | 4 705 | 3 932 | -16.43 | 5 095 | 4 043 | -20.65 | 5 709 | 4 200 | -26.43 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |
| VARIATION 4: LEVEL AND DISCIPLINE GROUP INCLUDING GRADUATE SUPERVISION | | | | | | | | | |
| The University of Alberta | 50 658 | 52 814 | + 4.26 | 54 224 | 56 431 | + 4.07 | 58 791 | 62 024 | + 5.50 |
| The University of Calgary | 25 587 | 24 730 | - 3.35 | 27 382 | 26 714 | - 2.44 | 29 339 | 28 101 | - 4.22 |
| The University of Lethbridge | 4 705 | 3 406 | -26.71 | 5 095 | 3 556 | -30.21 | 5 709 | 3 714 | -34.94 |
| TOTAL SECTOR | 80 950 | 80 950 | | 86 701 | 86 701 | | 93 839 | 93 839 | |

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[a] Excludes Faculties of Medicine--see Section A.c .

# TABLE 5.19

## APPLICATION OF THE ELEMENTARY MODEL TO THE PUBLIC COLLEGES SECTOR WEEKLY STUDENT HOURS AS THE STUDENT LOAD MEASURE

1975-76

($'000)

| INSTITUTION | ACTUAL[a] GRANT | VARIATION USING UNIVERSITIES SECTOR LOWER LEVEL AVERAGE DERIVED GRANT | VARIATION USING UNIVERSITIES SECTOR LOWER LEVEL AVERAGE PERCENTAGE CHANGE | VARIATION USING UNIVERSITY OF OF LETHBRIDGE LOWER LEVEL AVERAGE DERIVED GRANT | VARIATION USING UNIVERSITY OF OF LETHBRIDGE LOWER LEVEL AVERAGE PERCENTAGE CHANGE |
|---|---|---|---|---|---|
| Grande Prairie Regional College | 2 970 | 1 816 | -38.86 | 1 822 | -38.65 |
| Grant MacEwan Community College | 5 007 | 6 501 | +29.84 | 6 471 | +29.24 |
| Lethbridge Community College | 3 555 | 4 276 | +20.28 | 4 320 | +21.52 |
| Medicine Hat College | 2 027 | 1 171 | -42.23 | 1 174 | -42.08 |
| Mount Royal College | 7 274 | 7 373 | + 1.36 | 7 347 | + 1.00 |
| Red Deer College | 3 792 | 3 488 | - 8.02 | 3 491 | - 7.94 |
| TOTAL SECTOR | 24 625 | 24 625 | | 24 625 | |

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[a] Includes Canada Manpower and Priority Employment Training Program funding.

with institutional policy variable values, rather than system norms, in expectation that the derived grant distribution will more closely approximate the historical pattern. The major roadblock in this approach is the availability of data on the institutional variables used in the model. The data base is such that a fundamental-cost-model-type distribution is only possible if one uses institutional faculty salary expense as the distribution basis. Faculty salary expense data are given in the institutional financial statements. The results of this collapsed version of the elementary model are given in Table 5.20 and demonstrate the potential of this approach to reproduce the historical grant distributions.

## TABLE 5.20

## APPLICATION OF THE ELEMENTARY MODEL TO THE SYSTEM INSTITUTIONAL VARIABLES

| | 1974-75 | | | 1975-76 | | |
|---|---|---|---|---|---|---|
| INSTITUTION/SECTOR | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE | ACTUAL GRANT | DERIVED GRANT | PERCENTAGE CHANGE |
| The University of Alberta | 58 791 | 59 663 | + 1.48 | 75 467 | 76 058 | + 0.78 |
| The University of Calgary | 29 339 | 29 475 | + 0.46 | 39 068 | 39 277 | + 0.53 |
| The University of Lethbridge | 5 709 | 4 916 | -13.89 | 7 032 | 6 746 | - 4.07 |
| TOTAL UNIVERSITIES SECTOR | 93 839 | 94 054 | + 0.23 | 121 567 | 122 081 | + 0.42 |
| Grande Prairie Regional College | 2 101 | 1 778 | -15.37 | 2 970 | 2 746 | - 7.54 |
| Grant MacEwan Community College | 3 512 | 3 616 | + 2.96 | 5 007 | 4 654 | + 7.05 |
| Lethbridge Community College | 2 528 | 2 637 | + 4.31 | 3 555 | 3 607 | + 1.46 |
| Medicine Hat College | 1 499 | 1 426 | - 4.87 | 2 027 | 2 038 | + 0.54 |
| Mount Royal College | 5 402 | 5 257 | - 2.68 | 7 274 | 6 946 | - 4.51 |
| Red Deer College | 2 398 | 2 511 | + 4.71 | 3 792 | 4 120 | + 8.65 |
| TOTAL COLLEGES SECTOR | 17 440 | 17 225 | - 1.23 | 24 625 | 24 111 | - 2.09 |
| TOTAL SYSTEM | 111 279 | 111 279 | | 146 192 | 146 192 | |

The CAAT's distribution shown in Table 5.11 more closely approximates the actual grants than does this elementary model distribution. This is because the CAAT's methodology explicitly takes into account a second institutional program - the expense associated with the plant and property.

### 5. Evaluation of the Application of the Elementary Model

The elementary model differs from the simple productivity ratio method in that components of the productivity factor may be broken out for analysis purposes, and therefore policy inputs based on such analysis are possible.

The formula can be applied to the instruction process at many levels of detail of the policy parameters. Whatever the level of detail at which the elementary model is applied, the resulting formula FTE is a base which can be weighted to reflect historical or desired differences for which continued funding is intended. For example, formula FTE could be weighted for excellence at any institution in certain levels and disciplines, for historical differences in faculty activity distribution among primary programs, or for reflecting economies of scale. The level of aggregation may be reflective of most planning and management needs because the elementary model has the capability of being "unraveled" from a highly aggregate form into a very complex and detailed form, still using the same information system, the same variables and the same basic principles.

Faculty-related information and particularly full-time equivalent staff information is not always based on well-defined and comparable data elements in universities and is not available in public colleges. This makes system-wide application of the elementary model difficult. However, the system productivity ratio formulas to which the model collapses, could lead to overall improvement of definitions and an objective improvement in the data base. The elementary model has the capability to be used for internal allocation as well as inter-institutional allocation. Even if the value of the variables used for inter-institutional allocations are normative or system-wide, while the institutional variables are actual or historical, the definitions of variables could be the same and institutions may be encouraged to develop common data element definitions and compatible information systems to serve a province-wide allocation formula, as well as institutional needs to planning and budgeting information.

As we progressed through this section on the elementary model, we tried to demonstrate the potential for analysis that the model offers and the fact that the practical limitations of the existing data base will have to be overcome before this potential can be realized. The model allows the individual institutional characteristics and policies to become factors in the allocation process. Among other things, the use of institutional values for the policy variables opens the possibility that the institutions' concern about an allocation formula "perpetuating the injustices of the past" can be objectively analyzed and evaluated. Since the institutional values of the policy variables are important to institutional and system planning beyond financial planning, the model can serve as a conceptual and practical link. We will pursue this analytical capacity in the next section.

### 6. Further Analytical Variations of the Elementary Model

The important characteristic of the elementary model is its flexibility. It may be collapsed to a productivity ratio allocation formula with features that can be made suitable to the available data base and allocation circumstance or it can be used much as a simulation model, that is, one can test various policy alternatives by simulating distributions under various assumptions.

While we recognize the severe limitations of the Alberta data base for simulation model application, it is still interesting to explore the practical potential of this analytical construct. Also, we want to suggest a financial plan which is not only practical today, but has the potential to evolve with opportunities that may arise as system, sector and institutional planning methods maturate and that present themselves as information system capacity for analysis improves.

In the following paragraphs we will use the ideas suggested by the elementary model to explore two allocation formulas which are current in Canada - the Alberta universities enrolment unit formula and the CAAT's formula. The purpose of this examination is not to challenge or change the basic approach nor the assumptions of these financing techniques, but to see how the elementary model may assist the allocation process in jurisdictions using them. The enrolment unit formula rests on the notion of virtual costs. The elementary model offers an alternative way to estimate those costs. The CAAT's approach is dependent on the determination of ratios of faculty salaries expenses to distribute the non-plant and property component of the grant. The fundamental cost model is another way of getting at these same ratios. Thus, we seek by studying these alternatives, to open the possibilities that two basically incremental funding procedures be made more analytical and sensitive to policy input by adapting some of the characteristics of the elementary model.

i. The Enrolment Unit Formula -- The enrolment unit formula distributes formula grant component dollara on the basis of an institution's share of weighted students calculated in terms of enrolment units. If we go the next step and define omega $\omega_i$ as the enrolment unit weight for students in category 'i' times the dollar value of an enrolment unit, then an institution's formula grant component would be the sum of the products of students and $\omega_i$'s for all categories. That is, for institution 'a' the formula grant component $D_{a1}$ is:

$$D_{a1} = \Sigma\ \omega_i \times FTES_{ai}$$

The symbol $D_{a1}$ is used to indicate that the formula grant component is part of a distribution $D_1$ to institution 'a' and the subscript '1' differentiates this distribution from another we will discuss later.

If we are prepared to say that enrolment unit weights, which are virtual costs, are reasonably in proportion to the corresponding faculty salary expense portion of the cost, then omega is given by the following:

$$\omega_i = \left(\frac{G}{TFS}\right)\frac{TFS_i}{FTES_i}$$

where: G is the system formula grant component

$TFS_i$ is the total faculty salary expense associated with student category 'i'.

Notice that $TFS_i$ is given by the fundamental cost model, which on substitution into the equation for omega yields:

$$\omega_i = \left(\frac{G}{TFS}\right)\left(\frac{AFS}{AFL}\right)\left(\frac{WSH_i}{ACS_i \times FTES_i}\right)$$

The policy variables AFS and AFL are assumed to be system-wide constants. The ratio $WSH_i/FTES_i$ is an element of the system ICLM and the formula is simplified if we define:

$$\lambda_i = \frac{WSH_i}{FTES_i}$$

thus, the formula grant component is:

$$D_{a1} = \left(\frac{G}{TFS}\right)\left(\frac{AFS}{AFL}\right)\sum^{\text{All } i} \frac{\lambda_i}{ACS_i} \cdot FTES_{ai}$$

This equation for $D_{a1}$ is similar to the form of the equation arising from the enrolment unit formula. Hence we have derived an enrolment unit type formula distribution which is a function of many important system policy variables. The values of the omegas differ by a constant (dollar value of an enrolment weight). Hence a set of enrolment weights can be calculated by normalizing all omegas to the smallest.

There are numerous other variations on these sorts of calculations which may be useful in the allocation process. For example, another parameter which has come up in the application of the enrolment unit formula over the years is the bonus multiplier. The numerical value of (say) The University of Lethbridge multiplier $K_{Li}$ is given by the equation:

$$K_{Li} = \omega_{Li}/\omega_i$$

where: $\omega_{Li}$ is omega calculated with The University of Lethbridge policy parameters rather than the system parameters used to calculate $\omega_i$.

ii. The CAAT's Formula -- Besides its practicality given the Alberta data base, the CAAT's formula is interesting because it offers a start toward a program approach to the allocation process. Moreover from the perspective we have developed from applications of the elementary model, the CAAT's formula can, like the enrolment unit formula, be augmented to take advantage of the analytical flexibility of the model. The CAAT's formula is essentially:

$$D_{a2} = P_a + R \cdot \frac{TFS_a}{TFS}$$

where: $P_a$ is the Plant and Property grant

R is the remainder of the total grant after all the institutional Plant and Property grants have been removed.

Both $TFS_a$ and TFS can be calculated using the fundamental cost model. Thus the CAAT's formula may be rewritten as:

$$D_{a2} = P_a + R \cdot \left\{ \frac{\dfrac{WSH_a \times AFS_a}{ACS_a \times AFL_a}}{\dfrac{WSH \times AFS}{ACS \times AFL}} \right\}.$$

The most significant characteristic of this new expression for the CAAT's distribution is that it is explicitly a function of the institutions own policy variables. While the formula may seem complex in this form, it is possible to treat many of the variables, not only at the institutional and system level, but at several instructional levels for each discipline. Thus, the CAAT's formula combined with the elementary model offers a wide range of alternative allocation formulas. In the next Chapter we will test $D_1$ and $D_2$ with the Alberta data base. The results are given in Table 6.8.

# VI. CONCLUSIONS AND RECOMMENDATIONS

## A. Introduction

In Chapter I, the project approach was described as one which would lead to a long-term accommodation of financial planning. It was characterized as reminding one of an hourglass. The hourglass approach is broad at the top, taking into account all possible considerations, narrowing the alternatives down to a neck which is a practical financial plan at one point in time, and then widening out again to represent future evolution and adaptation. The conclusion of the Financial Plan Project is at this narrowest point.

In this Chapter, we recommend a financial plan which is both practical and meets the requirements of the project terms of reference. Also, we will show how the earlier chapters of this report and other documents produced during the project offer a framework for analysis and a language for communication, so that financial planning in Alberta may mature in response to changing circumstances. The proposed analytical basis of financial planning will allow planning processes to improve steadily and to capitalize on continuing improvements in system capacities.

Financial planning was viewed throughout this project as part of institutional and system-wide planning and management and it is anticipated that these larger processes will evolve as the advanced education system experiences a significant duration without staggering growth and fundamental change. Thus, the financial plan proposed, is not only expected to meet the current needs of the system for an allocation mechanism but to provide a sensible next step in a process which can unfold in accordance with government and institutional desires and practical capacities to meet agreed needs in the future.

This Chapter is structured to aid readers to focus quickly on topics of their interest. The proposed financial plan is presented in the next few pages. The following 20 pages or so, provide more detailed elaboration, illustrations and alternatives of technical interest. Most of the rest of the Chapter is given over to an evaluation of the proposals and the last section is epilogue.

## B. Financial Plan Proposal

The financial plan proposed as the next step in the evolution of Alberta financial planning of universities and public colleges consists of two components: A financing technique which includes an allocation formula, and a set of procedures. The following sections elaborate these elements.

### a. Financing Technique Proposal

A financing technique consists of two aspects: The means by which funds are allocated and the recipients. The proposed means is a single grant to each recipient which is the sum of up to three grant components; formula, non-formula (specific) and non-formula (special). The proposed recipients are the institutions. The financing technique is summarized in Figure 6.1.

The formula component of the grant to an institution is determined by the allocation formula described in the next section.

The non-formula (specific) grant components are determined in accordance with AAEM policy in respect of an institution or program. Initially, there would be four non-formula (specific) grant components to the following:

FIGURE 6.1

PROPOSED FINANCING TECHNIQUE

| MEANS | RECIPIENTS |
|---|---|
| Formula Grant Component | Grande Prairie Regional College<br>Grant MacEwan Community College<br>Lethbridge Community College<br>Medicine Hat College<br>Mount Royal College<br>Red Deer College<br>The University of Alberta<br>The University of Calgary<br>The University of Lethbridge |
| Non-formula (specific) Grant Component | Athabasca University<br>Banff Centre<br>The University of Alberta (Medicine)<br>The University of Calgary (Medicine) |
| Non-formula (special) Grant Component | All institutions |

Athabasca University, The Banff Centre, and the two universities with Faculties of Medicine. The Athabasca non-formula (specific) component for the remaining years of the current understanding[1] are made in accordance with AAEM policy with respect to Athabasca University at the time of the implementation of this plan. The allocation formula for the other universities and public colleges may provide AAEM with a guideline. The Banff Centre non-formula (specific) component is made in accordance with AAEM policy with respect to the Banff Centre at the time of implementation of the plan. The non-formula (specific) component of institutional grants with respect to Faculties of Medicine expenses, which are the subject of a separate study[2], are calculated in accordance with AAEM policy on funding for Faculties of

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[1] See AAEM "Athabasca University: A Proposed Role and Mandate", June 1975.

[2] See Chapter V. A. c.

Medicine at the time of the implementation of this plan.

The non-formula (special) component of an institutional grant is made by AAEM to take into account circumstances and expenses deemed outside the scope of formula and non-formula (specific) components. This component permits limited flexibility to provide funding on bases, and in proportion to variables, not included in the allocation formula. Since this could remove certain considerations outside formula and non-formula (specific) funding, non-formula (special) is the source for any corresponding grant funds. Start-up grant money for new approved programs, program development grants and other special grants may also be included in this component. While the financing technique permits this non-formula component to take a wide range of the share of the total grant, the proposal is that the non-formula (special) component be as small as practical in a funding period. Initially, the non-formula (special) component may include an amount for certain phasing-in adjustments that are not otherwise accommodated before the first funding period. In the initial funding period the non-formula (special) component could be less than one percent of the total grant with the expectation that this percentage would decline through subsequent funding periods. Since the total amount available for non-formula (special) is also the system fund for contingencies such as enrolments beyond planned levels, one would not expect the fund to be lower than a certain minimum for any funding period.

## b. Allocation Formula Proposal

Formula components of institutional grants are determined on the basis of an institution's share of system allocation units (AU). Allocation units are calculated as follows:

Allocation Units = Full-Time Equivalent Students x Enrolment Weights x Institutional Characteristics

Allocation units are calculated for each institution and for three levels of students in institutional programs. The first level includes public college students and university students in the first two years of first degree undergraduate programs. Upper level undergraduate students are the second level and the third level is comprised of graduate students. Since AU's are computed for each of three levels, full-time equivalent students (FTES) are grouped into these levels and each level has a corresponding enrolment weight. Enrolment weights are normalized such that $\overline{W}_1$ is unity and the other weights will be referred to as $\overline{W}_2$ and $\overline{W}_3$.

The third factor of an AU is the institutional characteristic (K), which allows the formula to recognize the individuality of each institution. There is one K for each institution for which a formula grant component is calculated.

## c. Proposals on Procedures and Other Recommendations to Assist Implementation and Maintenance of the Plan

### 1. Triennial Grant Commitment

A three-year planning horizon would increase opportunities for moving towards more comprehensive planning, as a system. This would pave the way for greater effort to be brought to bear upon system objectives, priorities, evaluations and adjustments, as depicted in the upper and lower parts of the planning process (Figure 3.1). At the institutional level, a three-year grant period would provide potential for identifying more clearly the capacity and flexibility to cope with foreseen problems. A longer financial perspective would promote the integration of institutional planning and annual budgeting. In addition, much of the work currently expended in annual cycles of budgeting might be reduced or eliminated.

Following a suitable phasing-in period, it is proposed that grants be committed to institutions for each of three subsequent fiscal years. Formal grant request procedures begin in the second year of a triennium and institutional grants are announced in the final year of the preceding triennium. Annual information necessary for monitoring enrolment weights and institutional characteristics and other data for system financial planning are gathered, maintained and analyzed in anticipation of government decision. A grant commitment for each of the fiscal years in the triennial funding period includes both formula and non-formula (specific) components. The actual transfer of funds to the institutions is in accordance with existing procedures and the certainty of latter-year grants rests on government guarantee contingent on annual legislative approval.

### 2. Phasing-In Procedure

In order to ensure a smooth transition to the proposed financial plan, a phasing-in period and associated procedures are necessary. If one assumes that 1977-78 is the mid-year of the current triennium, implementation of multiyear procedures leading to recommendations in 1978-79 for the triennium 1979-80 to 1981-82 can begin this year. This leaves only the fiscal year 1978-79 as interim. The following guidelines apply for the interim year:

1) No institutional grant will be less than the 1977-78 grant

2) No institutional grant increase will be less than 75% of a proportional share of the total university and public college grant increase for factors other than growth.

### 3. Block Grant Principle

The proposed financing technique and procedures describe a triennial process of annual grant determination. The procedure for the transfer of funds from AAEM to the institutions remains in accordance with Alberta tradition and current practice. The proposal is that each institution receive a block grant. The board of governors has sole responsibility for internal allocation. While public institutions have social responsibility for a clear and credible accounting for funds over and above the distribution and expenditure of funds according to law, each institutional grant is a global one, and any formulas and procedures used in the distribution of institutional grants do not obligate the institution to follow a particular expenditure pattern. Exceptions to the block grant principle such as those which earmark a grant or grant component should be the subject of explicit understandings between boards, governments and others.

### 4. Inflation

Since the proposed plan commits grants for a future three-year period, it is reasonable that AAEM policy address inflation. It is recommended that AAEM policy be that institutional annual grants are in real dollars for a fiscal year. Implementation of this policy should be such that an institution is never more than once fiscal year behind in any inflation adjustment.

### 5. Financial Year Uniformity

The financial year is not the same twelve months for each of the eleven institutions. The proposed financing technique and procedures will tend to encourage system-wide conformity to one starting date for institutional fiscal years. This topic should be referred to the technical advisory panel (proposed below) for recommendation.

### 6. Information for Planning and Management

Analysis in support of financial planning is hindered by the lack of comparable university and college management information. Depending upon the future evolution of government and institutional priorities for more analytical information in support of decisions, there may be need for considerable improvement in institutional information system capability to supply information useful for both institutional and system planning and management. As a practical step in this direction, it is proposed that AAEM produce annually, a document such as *Planning Paper Two: A Data Base.*

### 7. Institutional Advice on Financial Planning Procedures

Detailed and agreed procedures are necessary for plan implementation and maintenance beyond the phasing-in period. These procedures must ensure that the financing technique is able to sustain its responsiveness to real needs and thereby guarantee its long-term viability. Increased certainty for institutional and system planning is an important goal achievable through this financing technique. Hence, it is axiomatic that its continuous and consistent employment is fundamental to its use as a reliable and trusted tool in the allocation process. After some experience with the proposed plan, it will be possible to codify certain procedures which will take care of many operational concerns and contingencies. However, it is in the nature of the allocation process that change and unexpected occurences are best accommodated by the prudent intervention of informed human judgment.

There are at least three sets of policy related decisions that will be necessary in the administration of this plan. These surround the accomplishment of the following:

1) Equitable and credible determination of non-formula portions of

institutional grants in accordance with AAEM policy and priorities.

2) Development, implementation and evaluation of changes to the financial plan and its elements in response to:

a) Institutional and governmental policy changes

b) Accumulated experience showing the need for change. For example, improved information and planning systems may open opportunities not originally available to support additional and desirable financial plan characteristics.

3) Adjudication and accommodation of items not otherwise resolved explicitly by the financing technique and agreed procedures.

Decision in each of these three categories must be made by AAEM. These decisions distill much of the discretion in the allocation process and hence, will influence fundamentally the spirit of the relationship among the institutions and between the institutions and AAEM. In Alberta experience, such decision have been and should continue to be made after the funder has had the benefit of the advice of system members.

Beyond the required advice on the specific decisions in the above three areas, there need to be detailed and agreed procedures by which advice is sought and information in support of the decision-making process is gathered. Thus, it is recommended that a technical advisory panel be formed to assist AAEM in the decision process. Members of the proposed panel would include representatives of the members of the advanced education system. The panel would receive evidence and make recommendations to AAEM. Examples of specific topics which relate to the technical operation of this financial plan and its supporting data base on which the panel may give advice include:

1) Determination and evaluation of institutional data to support decisions on K's and W's

2) The capacity of institutional information systems to support decision making with respect to the non-formula grant component and all other financial planning decisions

3) The technical consequences and opportunities for evolution of the plan and integration of financial planning with all planning and management.

## C. Elaboration and Illustration of Proposals

The purpose of this section is to expand on the proposals so that they may be evaluated against the numerous criteria and concerns that have been identified over the life of the project. Thus, the descriptions are in sufficient detail so that one can judge the long-term value and immediate practicality of the proposals against the various guidelines and criteria, and within limits set by sensible constraints. This analysis of proposals and the rationale which led to them is also a basis for suggesting a direction and a path for the continuing evolution of financial planning in Alberta.

Because we are dealing with a complex system which directly touches tens of thousands of Albertans and spends hundreds of millions of dollars every year, it is possible to become overwhelmed by the detail, the complications and technicalities. Hence, a few observations are perhaps worth emphasizing. The present method of allocation of resources among the institutions has worked well. It has not been a major source of difficulty between the institutions and AAEM, nor within the government. The Financial Plan Project must not introduce new AAEM policy but accommodate existing policy. Hence, the proposed financial plan must allow for a wide spectrum of possibilities from minimal change in existing practices to significant change over time in the techniques of the allocation process. Since the present techniques have been incremental, the proposals permit evolution from that method towards a much more comprehensive and analytical approach.

### a. Discussion of Allocation Formula

The allocation formula has considerable flexibility and may be applied anywhere along the spectrum of the decision-making paradigms from the comprehensive to the remedial, depending on the intent and policy of the funder and the capacity of the data base. In the absence of explicit and specific policy decisions on the numerical values of the formula parameters, that is, the enrolment weights W and the institutional characteristics K, the alternative is to deduce these values for the initial triennium. There are four bench marks or measures, for which certain data are available, and which provide reasonable basis for determination of initial numerical values of formula parameters. These are:

1) Historical actual grants

2) Virtual costs

3) Numerical values of the policy variables identified by the elementary model and determined or approximated to the extent possible, given the current state of the data base

4) Historical program costs.

An important observation at this point is that while the approach seems analytical and comprehensive, the heavy reliance on precedent (historical numerical values of parameters, virtual costs, program costs and historical grants) implies an incremental approach. Nonetheless, this financing technique does have the potential to be used as a vehicle for allocation that can analytically incorporate policy decisions into a formula approach. These and other characteristics of the allocation formula are described in the following sections through discussion of methods for determining the initial numerical values of the parameters and by illustrations of formula distributions[1] for certain base years for which data are available.

### b. The Enrolment Weights

Use of the notion of enrolment weights has the merit that it is not new to Alberta nor Canada. There is a decade of experience with an enrolment unit weight formula in the universities sector. Based on this experience and the desire to produce a simple system plan, the idea of weighted enrolment has been preserved in a modified form and extended to the system of universities and public colleges.

The pertinent interpretation of enrolment weights has been discussed as virtual costs in Chapter IV. That is, the weights are the relative amount of funding provided by the province for certain student academic programs in universities. The proposal to reduce the number of weights from 22 to 3 is motivated by a number of objectives including:

1) To achieve simplicity to facilitate communication and accountability

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[1] Unless otherwise indicated in the tables in this Chapter, students for the universities include fall session regular day and evening credit program students, spring and summer session students and extramurals. Medicine graduate and undergraduate students are excluded. Students for the colleges include the average of those in fall and winter sessions, plus spring and summer session students. New program and sponsored students are included. Grants include all grants shown in Tables 2.8 and 2.9 except special grants in the colleges. Canada Manpower, Priority Employment Program, Alberta Vocational Training and industrial education funding are also included. Universities' grants exclude Medicine (see Chapter V. A. c.).

The level of a student is interpreted in the same manner as in the Alberta universities enrolment unit formula (see Appendix M). University and public college grants are those for their respective fiscal years. For universities, the fiscal year begins April 1; for public colleges, the fiscal year begins July 1.

2) To reinforce the notion of institutional autonomy and to lessen the concern that funding procedures influence internal institutional priorities and spending patterns

3) To facilitate the application of an allocation formula to the public colleges as well as the universities, so as to conform to the funder's perspective of the system as the virtual institution.

The use of such highly aggregated virtual costs or weights suggests that these should apply most appropriately at the highest level of aggregation in the allocation process. Also, the application of a weighting system which differentiates only by student level and is applied system-wide, suggests that the virtual cost of public college students is, and has been, the same as university students at the corresponding level. The data available to verify this policy are limited to two fiscal years. Table 6.1 shows the AAEM grant per FTES for public college students and the corresponding grant for lower level university students, as generated by lower level enrolment units. Thus, it is evident that (for the years for which data are available) the virtual cost of public college students and the corresponding level of university students has been the same.

TABLE 6.1

AAEM OPERATING GRANTS PER
UNIVERSITY LOWER LEVEL AND
PUBLIC COLLEGE FTE STUDENT

|  | ($/FTES) |  |
|---|---|---|
|  | 1974-75 | 1975-76 |
| University lower level<br>(1st two years undergraduate) | 2 039 | 2 479 |
| Public College | 2 015 | 2 432 |

Applying enrolment weight $W_1$ to all lower level students, regardless of institutional type, amounts to a statement that the virtual costs of lower level students are and should remain the same regardless of institutional type. In this discussion we have not raised the question of the appropriate definition of "student". The Alberta universities formula has one set of weights for full-time students and another for part-time students. We prefer to consider "students" as full-time equivalent students and have only one set of weights. The definition[1] of full-time equivalent students is given in *Planning Paper Two* (52).

We now turn to the question of the determination of numerical values for the enrolment weights. The formula must satisfy the constraint that (until there is a change in AAEM policy) in a fiscal year or in a grant period the reduced number of weights would have provided the universities sector and the public colleges sector with the same grant as existing methods. Thus, for the colleges sector, $W_1$, multiplied by the number of FTES must equal the colleges sector grant for the base year. Since the grant and the students are known for two base years, $W_1$ is easily determined. Similarly, the historical grants argument applied to the universities sector yields the formula:

$$\text{Grants to Universities Sector} = W_1 \times FTES_1 + W_2 \times FTES_2 + W_3 \times FTES_3$$

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[1] The fact that such an obviously fundamental parameter "student" is so difficult to define and that the number of "students" at each institution for each of the years is open to considerable speculation (for some institutions we simply do not know) is perhaps the best way that the technician's concern for comparable information for system-wide decisions can be emphasized for the non-information system or management specialist. The reader interested in pursuing the weakness of available information is referred to Figure 5.1 and to *Planning Paper Two*. All definitions should be reviewed eventually by the proposed technical advisory panel.

Only $W_2$ and $W_3$ are not known. In order to get the necessary second relationship between $W_2$ and $W_3$ to solve for their numerical values, we note that $W_2$ divided by $W_3$ is given by the ratio of these virtual costs for the collapsed Alberta universities formula. Hence, by using historical grants and virtual costs, one is able to solve in any year for a set of enrolment weights which apply to students differentiated only on the basis of level (not institutions nor academic program) and weights which maintain the historical grant relationships between the sectors. Table 6.2 shows the values of $W_1$, $W_2$ and $W_3$ for the two base years for which data are available as well as the values of the (relative) enrolment weights 1, $\bar{W}_2$ and $\bar{W}_3$. The table also shows the average values of the annually determined $\bar{W}$'s. The final selection of the enrolment weights, if that decision is to be based on these sorts of deductions can await data for the fiscal year 1976-77. The final decision for the first triennium could then be based on three years experience. For continuing illustrations we select the average annual value of the $\bar{W}$'s; 1.0000, 1.4182 and 3.2500.

TABLE 6.2

VALUES OF ENROLMENT WEIGHTS FOR TWO BASE YEARS

| ENROLMENT WEIGHT | ($/FTES) 1974-75 | 1975-76 | AVERAGE |
|---|---|---|---|
| $W_1$ | 2 015 | 2 432 | 2 224 |
| $W_2$ | 2 847 | 3 463 | 3 155 |
| $W_3$ | 6 596 | 7 848 | 7 222 |

| NORMALIZED ENROLMENT WEIGHT | (RATIOS) 1974-75 | 1975-76 | AVERAGE |
|---|---|---|---|
| $\bar{W}_1$ | 1.0000 | 1.0000 | 1.0000 |
| $\bar{W}_2$ | 1.4124 | 1.4240 | 1.4182 |
| $\bar{W}_3$ | 3.2727 | 3.2273 | 3.2500 |

Earlier in this section we discussed the bench mark, or measure, historical program costs. Program costs must be determined from a detailed cost study of the sort performed a number of years ago at The University of Alberta and The University of Calgary. While comparisons cannot be made for the same base years and the same institutions (The University of Lethbridge and the public colleges were not included in the cost studies), Table 6.3 which provides program costs by student level is interesting. It shows a certain stability over time and the close approximation of these relative cost figures to the enrolment weights for the base years. In Table 6.4 another historical indicator of interest and significance is arrayed for a number of years for comparative purposes. It is the ratio of enrolment units to full-time equivalent students in the three levels of the 'collapsed' Alberta universities formula as used in the proposed allocation formula.

### c. The Institutional Characteristics

Application of the enrolment weights provides a simulated distribution of the formula component of the grant which meets the conditions described above and is illustrated in Table 6.5 for the two base years. The test allocation to each individual institution by the W's alone suffers from the serious deficiency that it does not recognize the peculiar features and special aspects which make each individual institution vary from the virtual institution (see Chapter IV), that is, differ from the system average. To accommodate such differences, the institutional characteristic K adjusts the virtual cost distribution at the system and sector levels, to take into account distinguishing institutional attributes which exist for a variety of reasons. These reasons include economies and diseconomies of scale, regional factors, variations in institutional programs and program mixes,

## TABLE 6.3

### PROGRAM COSTS BY LEVEL FROM THE UNIVERSITY OF ALBERTA AND THE UNIVERSITY OF CALGARY COST STUDIES[a]

| LEVEL | 1970-71 | 1971-72 | 1972-73 |
|---|---|---|---|
| Lower | 2 052 | 2 310 | 2 446 |
| Upper | 2 683 | 2 789 | 2 898 |
| Graduate | 7 468 | 7 212 | 7 796 |
| NORMALIZED VALUES OF PROGRAM COSTS (RATIOS TO LOWER LEVEL) | | | |
| Lower | 1.00 | 1.00 | 1.00 |
| Upper | 1.31 | 1.21 | 1.18 |
| Graduate | 3.64 | 3.12 | 3.19 |

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[a] FTE students calculated using enrolment unit formula standards. Excludes extramural, evening credit program, and spring and summer session students. The program costs analyzed were calculated from cost study data and are not available in the reports of these studies.

## TABLE 6.4

### ENROLMENT UNITS PER FTE STUDENT IN ALBERTA UNIVERSITIES

| LEVEL | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|---|---|---|---|---|---|---|
| Lower | 1.2703 | 1.2707 | 1.2614 | 1.2612 | 1.2698 | 1.2857 |
| Upper | 1.7793 | 1.7649 | 1.7744 | 1.7627 | 1.7639 | 1.7782 |
| Graduate | 4.1963 | 4.2178 | 4.1560 | 4.0110 | 4.0872 | 4.0300 |
| NORMALIZED VALUES OF ENROLMENT UNITS PER FTE STUDENT (RATIOS TO LOWER LEVEL) | | | | | | |
| Lower | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upper | 1.40 | 1.39 | 1.41 | 1.40 | 1.39 | 1.38 |
| Graduate | 3.30 | 3.32 | 3.29 | 3.18 | 3.22 | 3.14 |

## TABLE 6.5

## SIMULATED DISTRIBUTION OF INSTITUTIONAL GRANTS FOR BASE YEARS USING AVERAGE ANNUAL VALUES OF ENROLMENT WEIGHTS

| INSTITUTION/SECTOR | 1974-75 WEIGHTED FTE STUDENTS (FTES · W) | 1974-75 ACTUAL BASE YEAR GRANT ($'000) | 1974-75 DERIVED GRANT $_1D_W$ ($'000) | 1975-76 WEIGHTED FTE STUDENTS (FTES · W) | 1975-76 ACTUAL BASE YEAR GRANT ($'000) | 1975-76 DERIVED GRANT $_2D_W$ ($'000) |
|---|---|---|---|---|---|---|
| The University of Alberta | 30 060 | 60 364 | 60 581 | 31 155 | 77 364 | 75 774 |
| The University of Calgary | 15 510 | 29 339 | 31 257 | 17 510 | 39 068 | 42 586 |
| The University of Lethbridge | 1 774 | 5 709 | 3 576 | 2 [illegible] | 7 032 | 5 101 |
| UNIVERSITIES SECTOR | 47 345 | 95 412 | 95 414 | 50 762 | 123 464 | 123 461 |
| Grande Prairie Regional College | 681 | 2 101 | 1 373 | 835 | 2 970 | 2 031 |
| Grant MacEwan Community College | 1 985 | 3 512 | 4 000 | 2 690 | 5 007 | 6 542 |
| Lethbridge Community College | 1 202 | 2 528 | 2 422 | 1 291 | 3 555 | 3 140 |
| Medicine Hat College | 462 | 1 499 | 931 | 580 | 2 027 | 1 411 |
| Mount Royal College | 3 030 | 5 402 | 6 106 | 3 362 | 7 274 | 8 177 |
| Red Deer College | 1 293 | 2 398 | 2 606 | 1 368 | 3 792 | 3 327 |
| COLLEGES SECTOR | 8 653 | 17 440 | 17 438 | 10 126 | 24 625 | 24 628 |
| TOTAL SYSTEM | 55 998 | 112 852 | 112 852 | 60 888 | 148 089 | 148 089 |

PERCENT

| INSTITUTION/SECTOR | 1974-75 ACTUAL BASE YEAR GRANT | 1974-75 DERIVED GRANT $_1D_W$ | 1975-76 ACTUAL BASE YEAR GRANT | 1975-76 DERIVED GRANT $_2D_W$ |
|---|---|---|---|---|
| The University of Alberta | 63.27 | 63.49 | 62.66 | 61.38 |
| The University of Calgary | 30.75 | 32.76 | 31.64 | 34.49 |
| The University of Lethbridge | 5.98 | 3.75 | 5.70 | 4.13 |
| UNIVERSITIES SECTOR | 100.00 | 100.00 | 100.00 | 100.00 |
| Grande Prairie Regional College | 12.05 | 7.87 | 12.06 | 8.25 |
| Grant MacEwan Community College | 20.14 | 22.94 | 20.33 | 26.57 |
| Lethbridge Community College | 14.50 | 13.89 | 14.44 | 12.75 |
| Medicine Hat College | 8.59 | 5.34 | 8.23 | 5.72 |
| Mount Royal College | 30.97 | 35.02 | 29.54 | 33.20 |
| Red Deer College | 13.75 | 14.94 | 15.40 | 13.51 |
| COLLEGES SECTOR | 100.00 | 100.00 | 100.00 | 100.00 |

special circumstances which may, in any fiscal year or series of years, influence institutional expenditures as well as differences in instructional practices, student mix and personnel compensations.

Given the multiyear funding period proposed, it is necessary to make a decision on whether the K's like the W's are fixed for the period or may vary (but be predetermined) for each year in the period. The proposal is that K's and W's be set such that their numerical values are unchanged for the triennium. Table 6.6 shows the actual biennial grant distribution for the fiscal years1974-75 and 1975-76 - the only multiyear period for which we have data. The numerical values of the K's are set to ensure that total derived grants in the biennium calculated by the allocation formula would be equivalent to the sum of each institution's actual grants received in the two years. Thus the numerical value of K for each institution is the ratio of actual to derived grants. These are given in Table 6.6.

The resultant base year simulated distribution using the allocation formula:

$$AU = FTES \times W \times K$$

for the formula grant component is given in Table 6.7. This table also shows the number of allocation units for each institution for each base year simulated.

The variation in institutional annual grants that would have ensued as a result of the use of these K's and W's demonstrates the likely range of adjustment that non-formula (special) grant components may have to meet in the years in the triennium. There is a tendency to treat these historical variations as maximum variations, since one is not aware of the special circumstances that may arise and necessitate adjustment in the future. However,

## TABLE 6.6

## NUMERICAL VALUES FOR THE INSTITUTIONAL CHARACTERISTICS

| INSTITUTION/SECTOR | 1974-1976 BIENNIAL GRANTS ($'000) | SUM OF BASE YEAR DERIVED GRANTS $_1D_W$ & $_2D_W$ ($'000) | INSTITUTIONAL CHARACTERISTIC K |
|---|---|---|---|
| The University of Alberta | 137 728 | 136 355 | 1.0101 |
| The University of Calgary | 68 407 | 73 843 | 0.9264 |
| The University of Lethbridge | 12 741 | 8 677 | 1.4684 |
| UNIVERSITIES SECTOR | 218 876 | 218 875 | |
| Grande Prairie Regional College | 5 071 | 3 404 | 1.4897 |
| Grant MacEwan Community College | 8 519 | 10 542 | 0.8081 |
| Lethbridge Community College | 6 083 | 5 562 | 1.0937 |
| Medicine Hat College | 3 526 | 2 342 | 1.5056 |
| Mount Royal College | 12 676 | 14 283 | 0.8875 |
| Red Deer College | 6 190 | 5 933 | 1.0433 |
| COLLEGES SECTOR | 42 065 | 42 066 | |
| TOTAL SYSTEM | 260 941 | 260 941 | |

## TABLE 6.7

## ILLUSTRATION OF PROPOSED ALLOCATION FORMULA SHOWING SIMULATED DISTRIBUTIONS OF FORMULA GRANT COMPONENTS FOR THE BASE YEARS

| | 1974-75 | | | 1975-76 | | |
|---|---|---|---|---|---|---|
| INSTITUTION/SECTOR | ALLOCATION UNITS (AU) | ACTUAL BASE YEAR GRANT ($'000) | ALLOCATION FORMULA GRANT ($'000) | ALLOCATION UNITS (AU) | ACTUAL BASE YEAR GRANT ($'000) | ALLOCATION FORMULA GRANT ($'000) |
| The University of Alberta | 30 364 | 60 364 | 61 185 | 31 470 | 77 364 | 76 545 |
| The University of Calgary | 14 369 | 29 339 | 28 953 | 16 221 | 39 068 | 39 454 |
| The University of Lethbridge | 2 605 | 5 709 | 5 250 | 3 080 | 7 032 | 7 490 |
| UNIVERSITIES SECTOR | 47 338 | 95 412 | 95 388 | 50 770 | 123 464 | 123 489 |
| Grande Prairie Regional College | 1 015 | 2 101 | 2 044 | 1 244 | 2 970 | 3 026 |
| Grant MacEwan Community College | 1 604 | 3 512 | 3 232 | 2 174 | 5 007 | 5 287 |
| Lethbridge Community College | 1 315 | 2 528 | 2 649 | 1 412 | 3 555 | 3 434 |
| Medicine Hat College | 696 | 1 499 | 1 402 | 873 | 2 027 | 2 124 |
| Mount Royal College | 2 689 | 5 402 | 5 419 | 2 984 | 7 274 | 7 258 |
| Red Deer College | 1 349 | 2 398 | 2 718 | 1 427 | 3 792 | 3 471 |
| COLLEGES SECTOR | 8 667 | 17 440 | 17 464 | 10 114 | 24 625 | 24 600 |
| TOTAL SYSTEM | 56 005 | 112 852 | 112 852 | 60 884 | 148 089 | 148 089 |

as system enrolments stabilize, one would expect fewer special circumstances requiring extraordinary grants especially in a multiyear funding period.

In the absence of an explicit policy decision on K, the proposed method for the determination of the numerical values of the K's is incremental. That is, the K's are calculated on the basis of precedent to arrive at values such as illustrated in Table 6.6. However, it is useful to explore future possibilities (the widening of the hourglass) by taking a more analytical approach to the calculation of K in order to account for the institutional differences mentioned above.

### 1. An Analytical Alternative Determination of K

Ideally, one should be able to evolve a model which would permit the calculation of the impact of these distinguishing institutional attributes on resource requirements. For the most part, such calculations are, in practical terms, either beyond the state of the art or beyond application with the Alberta data base. However, the earlier discussions on the elementary model suggest that certain institutional program costs can be reasonably estimated through the use of this model. Moreover, the model allows costs or resource requirements to be calculated using certain system or sector values for policy variables chosen for the model either on the strength of historical precedent or a policy decision. Thus, it may be possible to consider K as the product of two factors, one calculated from circumstances which can be expressed analytically ($K_2$) and one which cannot ($K_1$). If so, only this latter factor must be estimated on the basis of historical grants or on the basis of policy arrived at through the normal decision process.

Pulling the institutional characteristic K apart allows us to gain insight into the institutional factors which influence distributions. Such analysis can encourage discussion of differences and hence sharpen funding rationale for these institutional peculiarities. Dissection of the institutional characteristic will encourage study of important cost determining factors, while not in any way abandoning a proven method of coping with the allocation problem. It is not the intent that K should be calculated from first principles or policies for the initial triennium, however, through a process of continuous improvement in the capactity of the system for analysis, the funder will have the option of examining with increasing confidence the various analytic constructs and information which may lend a more objective approach to the allocation problem within the context of system/sector/institutional planning and management.

In order to pursue the analytical option further, consider the analytical component of K, $K_2$ in the light of the following logic. The enrolment weights, the W's, provide a grant distribution $D_W$ which depends on system virtual costs, but does not especially take institutional differences into account. Thus, to balance these two considerations, $K_2$ may be viewed as a ratio of two conceptual determinations of the institutional grant, that is:

$$K_2 = D_2/D_1$$

where: $D_1$ is a distribution based on sector-wide numerical values for policy variables and $D_2$ is a distribution based on individual institutional values.

The distribution $D_1$ is an elementary model type simulation of a distribution which is based on sector-wide historical values for the policy variables. The enrolment weight distribution $D_W$ is a virtual cost, historical grant distribution. To the extent that this elementary model distribution approximates the enrolment weight distribution, $D_1$ can be viewed as an analytical equivalent of $D_W$. The formula for the $D_1$ distribution to institution 'a' was developed in Chapter V and is shown below.

$$D_{1a} = \left(\frac{G}{TFS}\right) \cdot \left(\frac{AFS}{AFL}\right) \sum_{i=1}^{3} \frac{\lambda_i}{ACS_i} \cdot FTES_{ai}$$

The formula yields the $D_1$ distribution for institution 'a' and may be seen as the product of several sector-wide variables and only one institutional (exogenous) variable, $FTES_{ai}$, the number of full-time equivalent students at institution 'a' in level 'i'.

The other variables are:

G - Total formula grant component for the sector

TFS - Total faculty salaries

AFS - Average faculty salary

AFL - Average faculty load

$\lambda_i$ - Ratio of sector-wide weekly student hours in level i to full-time equivalent students in level i

$ACS_i$ - Average class size in level i

The formula for $D_1$ is useful because it presents the distribution as a function of many important policy variables. The values chosen for illustrative purposes are historical but the option exists for certain sector-wide averages of these variables to be set by policy. Also, the exposition of the formula in this form may help focus discussion on the factors and trade-offs which influence distributions. Table 6.8 shows the $D_1$ distribution for the two base years, ${}_1D_1$ and ${}_2D_1$, these may be compared with ${}_1D_W$ and ${}_2D_W$ given in Table 6.5. One should observe that since there is only one level of enrolment weight for public college students the "theoretical" distribution $D_1$ is identical to the enrolment weight distribution $D_W$ in that sector.

## TABLE 6.8

## ILLUSTRATION OF CERTAIN INSTITUTIONAL CHARACTERISTIC FACTORS BY COMPARISON OF SIMULATED DISTRIBUTIONS $D_1$ AND $D_2$ FOR THE BASE YEARS

(Percent)

| INSTITUTION/SECTOR | 1974-75 ACTUAL BASE YEAR GRANT | 1974-75 DERIVED GRANT $_1D_1$ | 1974-75 DERIVED GRANT $_1D_2$ | 1975-76 ACTUAL BASE YEAR GRANT | 1975-76 DERIVED GRANT $_2D_1$ | 1975-76 DERIVED GRANT $_2D_2$ |
|---|---|---|---|---|---|---|
| The University of Alberta | 62.65 | 63.74 | 63.36 | 62.08 | 61.72 | 62.48 |
| The University of Calgary | 31.27 | 32.69 | 31.20 | 32.14 | 34.30 | 31.84 |
| The University of Lethbridge | 6.08 | 3.57 | 5.44 | 5.78 | 3.98 | 5.68 |
| UNIVERSITIES SECTOR[a] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Grande Prairie Regional College | 12.05 | 7.87 | 11.60 | 12.06 | 8.25 | 11.83 |
| Grant MacEwan Community College | 20.14 | 22.94 | 20.99 | 20.33 | 26.57 | 19.55 |
| Lethbridge Community College | 14.50 | 13.89 | 15.09 | 14.44 | 12.75 | 14.86 |
| Medicine Hat College | 8.59 | 5.34 | 8.27 | 8.23 | 5.72 | 8.50 |
| Mount Royal College | 30.97 | 35.02 | 30.22 | 29.54 | 33.20 | 29.04 |
| Red Deer College | 13.75 | 14.94 | 13.83 | 15.40 | 13.51 | 16.22 |
| COLLEGES SECTOR | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

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[a] Total Universities Sector grants for 1974-75 were $93 839 000 and for 1975-76 were $121 567 000. These are slightly different totals than shown in Table 6.7 and other tables comparing "outcomes" type formula distributions. See Chapter V. A. c. for discussion of procedures for excluding Faculties of Medicine from tests.

Consider next the second factor of $K_2$, that is, the distribution $D_2$. Remember that the intent of $K_2$ is to open options to the funder for more analysis of policy alternatives. Thus, the second conceptual distribution follows a program approach and uses the elementary model rationale on the activities side of the ICLM. The inherent limitations to a program approach in institutions of advanced education and the ever present data base circumstances still permit a practical program approach which is based on the following:

1) The Plant and Property program (identified as essentially PCS 6.5 base year expenses) may be separated

2) The elementary model FTE multiplied by average faculty salary yields a proxy for total instruction program costs or resource requirements

3) Employing our "all other things are equal" assumption, allows instruction program costs to be proxy for other program costs except PCS 6.5. Thus, the $D_2$ allocation calculation consists of two components:

1) Plant and Property base year(s) expenses, $P_a$

2) An institution's share of the sector remainder of the base year(s) grant, in proportion to the institution's share of the total sector faculty salary expense. The remainder R is the sector grant less the sum of all institutional Plant and Property expenses. The formula for $D_2$ is developed in Chapter V also, and is shown below:

$$D_{2a} = P_a + R \cdot \left[ \frac{\dfrac{WSH_a \cdot AFS_a}{ACS_a \cdot AFL_a}}{\dfrac{WSH \cdot AFS}{ACS \cdot AFL}} \right]$$

The formula illustrates the separate program components of the total distribution and the 'a' subscripted variables indicate the institutional factors which influence the distribution. Since $D_2$ is a function of the institutional values of the policy variables, this distribution has the potential to match more closely the actual institutional grants in the base years. The extent to which the simulated distribution $D_2$ approximates the actual institutional grants is limited by the comparability of program information including institutional expenditure data. These limitations may be reduced in the future and more programs may be treated explicitly. The distributions ${}_1D_2$ and ${}_2D_2$ are shown in Table 6.8. The illustration serves to show the potential that currently exists for a program approach using institutional numerical values for important policy variables as indicators of costs and resource requirements. When historical values of the policy variables are taken, as in this illustration, the $D_2$ distribution is the "CAAT's" distribution discussed in Chapter V.

The final factor of K, $K_1$, like the other policy variables, may be chosen on the basis of precedent. For example, Table 6.9 shows the numerical value of the incremental factors $K_1$, given by the following equation:

$$K = K_1 \cdot \left[ \frac{{}_1D_2 + {}_2D_2}{{}_1D_1 + {}_2D_1} \right]$$

The numerical values of K are those required to ensure that, for each institution, the sum of the actual base year grants is equal to the sum of the derived grants for the same biennium.

Under the circumstances illustrated, that is, in which $K_2$ is "determined" analytically, $K_1$ takes on the incremental properties of K as originally

TABLE 6.9

ARRAY OF NUMERICAL VALUES OF
COMPOSITE FACTORS OF INSTITUTIONAL CHARACTERISTICS
FOR EACH YEAR OF THE BASE BIENNIUM

| INSTITUTION | INSTITUTIONAL CHARACTERISTIC K | INCREMENTAL FACTOR $K_1$ | ANALYTICAL FACTOR $K_2$ |
|---|---|---|---|
| The University of Alberta | 1.0101 | 1.0059 | 1.0042 |
| The University of Calgary | 0.9264 | 0.9864 | 0.9392 |
| The University of Lethbridge | 1.4684 | 1.0003 | 1.4680 |
| Grande Prairie Regional College | 1.4897 | 1.0270 | 1.4505 |
| Grant MacEwan Community College | 0.8081 | 1.0053 | 0.8038 |
| Lethbridge Community College | 1.0937 | 0.9668 | 1.1312 |
| Medicine Hat College | 1.5056 | 0.9974 | 1.5096 |
| Mount Royal College | 0.8875 | 1.0203 | 0.8698 |
| Red Deer College | 1.0433 | 0.9663 | 1.0797 |

described in the proposal for the first triennium. That is, $K_1$ becomes a factor which must allow for all remaining tangible and intangible factors and circumstances which have led and will (should) lead to a particular formula grant distribution. Thus, except for the non-formula grant components, $K_1$ is a residue factor to accommodate all institutional characteristics and other particulars not included in the analytical process. Beyond the policy decisions made in respect of the determination of the numerical value of $K_2$, $K_1$ allows one a larger degree of freedom for policy input to the allocation process.

A particularly salient observation to be made about the $K_1$ numerical values in Table 6.9 is how consistently close they are to unity for all types and sizes of institutions. This indicates the $K_2$ analytical ratio is remarkably efficient in taking institutional characteristics into account and hence in simulating K itself. If the analytical approach suggested by the proposals in this Chapter is pursued, the resultant maturation of the Alberta data base may eventually lead one to have sufficient confidence in the analytical factor to consider using $K_2$ for K in some future triennium.

In summary, use of the various models and formulas is an option which, if taken, should tend to maturate the data base in a way that practically improves system analytical capability. The strength which the elementary model and program approach brings to the calculation of institutional characteristics is that it makes explicit the possibility of an analytical determination of an institution's allocation on the basis of institutional and system policy variables. This approach reinforces the innate tie between budgeting, all institutional and system planning and resource allocation.

### d. Test Allocation for Base Years

Table 6.7 shows the simulated formula grant component distribution which the average W's and biennial K's developed in the previous sections, yield for each base year. As already discussed, there will be one more year of experience before triennial values for the weights and characteristics need be chosen and projections made for FTES by institution and level. Thus, it is perhaps premature to suggest numerical values for these parameters even if one anticipates that historical precedent will figure heavily in the decision. However, we carry the illustration one step further because it is possible, again on the basis of experience, to estimate the relative amounts of the non-formula (special) component of the total institutional grant. Also, by pursuing this example, we will raise a number of practical issues which need policy resolution before implementation of the proposals. We have calculated the base years amounts for the non-formula (specific) component, that is, amounts for Athabasca University, the Banff Centre, and the Faculties of Medicine, and hence these are not included in Table 6.7 and are known or given quantities in our consideration of the non-formula (special) grant component.

During the three-year operating grants scheme for universities, 1972-73 to 1975-76, two discrepancies became very important. These were differences between actual and expected inflation and student enrolment growth. The triennial proposal requires that inflation be explicitly recognized in institutional grants and hence an assumption with respect to inflation is built in to each total annual grant. Unanticipated growth in the system, relative to planned student enrolment figures, raises two types of considerations. If the system grows relatively evenly across the institutions in excess of planned or quota figures, the formula distribution of the fixed government grant remains appropriate. In the circumstances that prevail in a fiscal year, the government may wish to grant AAEM additional funds to cover the growth costs. If the system in total remains reasonably close to planned student enrolments, but there is a substantial growth in one or more institutions, there needs to be a system contingency which can be brought into play each year. Whether the contingency funds are held in Alberta Treasury or in the AAEM budget, it seems reasonable that the non-formula (special) component be determined annually. Therefore, the stricter notion of the triennial grant determination is relaxed to allow for the flexibility that is needed to provide a sensible contingency mechanism. Thus, beyond contingency, the non-formula (special) grant component provides a potential source of funds, annually determined, for whatever system purpose.

In the illustrative biennial calculation of the K's, we effectively assumed that the non-formula (special) grant component was zero because K was determined as the ratio of the annual institutional grant less essentially what we call the non-formula (specific) grant component, to the $D_W$ grant distribution. In other words, the non-formula (special) type money for the base years is included in the actual and $D_W$ distributions and hence accounted for in the calculation of the K's and W's. Before determination of the K's and W's for the initial triennium, the technical advisory panel may want to debate and to analyze the consequences of such assumptions in respect of each institution and to recommend alternatives. Such an analysis will involve consideration of many individual grants (see for example, Tables 2.8, 2.9 and Appendices G and J) and associated student counts. The proposed financing technique does not exclude any of these sorts of individual grants which have been issued previously from being classified as elements of the new non-formula (special) component. However, it is suggested that this new component be as small as possible. Thus, the decision of what funds should be included in non-formula (special) and hence not included in calculation of K's and W's is a policy decision on which AAEM may want technical advisory panel recommendations.

There are a number of important considerations which support the proposition that the non-formula (special) component should be as small as possible. The purpose of the triennial grant cycle is to provide institutions and the advanced education system an opportunity to plan and to integrate budgeting with planning. To a certain extent grant components for special purposes such as new program development and start-up may be requested at the beginning of the triennium and hence can be included in the K. Given the proposed longer financial period, other "special" activities may be planned and budgeted for within anticipated institutional funds. Thus, the activities which require special annual funding from AAEM could be fewer in the future. The smaller the non-formula (special) fund the less tendency there would be to rely on it and the more encouragement there would be for institutional planning and autonomy. A relatively small sum would tend to become more a contingency fund for unforeseen items. The decision on the extent to which special funds should be part of the base for formula grants is one that depends on individual circumstances. Historical analysis of special grants and associated students is not possible but the data base has improved such that 1975-76 data are suitable. The notion that the non-formula (special) component be one percent maximum for the total grant was based on these 1975-76 data and the assumption that each institution could adjust internally for annual deviations that are less than one percent of its budget and which are supposed to net out over the triennium. This one percent system fund is a reserve for contingencies and should be expanded if additional purposes are to be met.

To summarize, the proposals set out an objective methodology and one which requires policy decisions. In our illustrations we have made certain assumptions, but actual implementation demands, as it should, policy input.

## D. Discussion and Evaluation of Proposals

This section evaluates project research and the proposals against the criteria available. Also, this evaluation is intended to serve as the basis for continuing work on the allocation problem and provide a summary of how the many elements of project work may bear on future efforts to improve planning, including financial planning.

### a. Project Terms of Reference and Guidelines

We begin with project terms of reference (Appendix A) and will use the list of the 18 guidelines as a convenient expression, as given in *Planning Paper One*, of the essence of the terms of reference in point form.

> 1. *Will accommodate present Alberta advanced education objectives and policies and yet be flexible enough so that new programs and changes in policy on existing programs may also be accommodated with minimal adjustment*

The plan accommodates present policy to the extent that the policy is circumscribed by institutional funding in the past few years. The proposed plan has sufficient flexibility that it would have allowed grant distribution for recent years, which are exactly as in the grant years. It is perhaps the strongest overall aspect of project research results and the proposals that they provide a framework for logical and technically sound evolution of the plan to accommodate both policy alternatives and methodological changes - at the option of the funder.

2. *Will take into account the concerns of those affected by financial planning*

The concerns of those who might be affected by a plan have been continuously monitored throughout the project by numerous discussions and correspondence with groups and individuals. More than two hundred copies of the earlier planning papers, which included series of questions seeking advice, were distributed. However, it should be recognized that no attempt was made to gain a consensus among any constituency on the suitability of a plan. The advice received by the project staff influenced the development of the proposals. Nonetheless, the best guarantee that the second guideline will be met, is through the work of the proposed technical advisory panel. The panel will deal with adjustments and implementation of the plan and hence it provides a continuing opportunity for satisfaction of this second guideline.

3. *Will provide an objective means of allocating available funds among institutions within each sector under study*
4. *Will not specify the total level of funding available to public colleges or universities and will not be concerned with total operating funds voted to AAEM*

The objectivity of the plan is assured by the large share of the AAEM grant which is distributed on the basis of the proposed allocation formula. Actually, the formula goes beyond the strict requirements of the guideline and provides a means of distributing the system grant to institutions in both sectors. The formula is, of course, flexible enough to be used to distribute sector grants to the institutions in their sector.

The plan meets the further guideline in that it does not specify the level of funding, but it is also evident that the allocation formula provides a means of estimating total system (formula component) resource requirements given decisions with respect to changes in certain policies, and enrolment projections. Nonetheless, the plan is primarily intended to allocate AAEM funds to the eleven institutions. It can never determine the total system grant which, of course, is the responsibility of the people's elected representatives. However, in Alberta, as in other jurisdictions, the financial planning process and the associated tools and techniques can be (and should be) used in the process by which institutional budget requests are formulated, as well as the allocation process.

5. *Will not be designed or intended for use as a control mechanism for institutional expenditures*
6. *Will not be designed or intended for use as a basis for internal allocation nor as a spending pattern within any institution*

The next two guidelines arise out of fears and charges often leveled against "formula budgeting". We feel that the plan is a very poor control mechanism for directing institutional expenditures and equally ineffectual as a template for internal institutional spending - even if the funder wanted to control these things. The proposed allocation formula has only three enrolment weights and hence should raise considerably less apprehension than the more extensive or micro formulas with which we have experience in Canada. The simpler proposed formula will be seen as less susceptible to misuse as a funder's tool for internal institutional influence.

The best (technical) assurance that a plan will not control institutional affairs is the block grant principle, which allows one global lump sum of money to pass from AAEM to the boards of institutions. Beyond requirements of the laws of Canada and Alberta, the expenditure and accounting for these funds rests with the board. The block grant principle leaves the decision of the distribution of institutional resources among the primary programs of instruction, research and public service to the institution. The fact that institutional funding depends on the level of students might be seen by some as incentive to the universities to increase upper level enrolments or for all institutions simply to increase enrolment. We have discussed this aspect of formula funding earlier, but it may be useful to draw a number of important observations.

A financial plan is a tool and any tool may be misused. The literature speaks at some length of the demise of fair and equitable means of distribution because institutions or funders chose to follow strategies which had this consequence. Meisinger, in his recent doctoral thesis on this topic[1], provides an excellent treatment of how various strategies of institutions and funders, in a policy environment that includes the organizational structure of higher education, the economic climate of the jurisdiction, the formula structure itself and the administrative role of the numerous actors, lead to change. Thus, to retain its legitimacy a financial plan and its implementation must strike a balance between each institution's ability to manipulate funding and the funding agency's tight control.

Beyond our proposals as a package including the triennium, planning/analytical focus and the technical advisory panel, we have no suggestions for policing implementation. However, we do feel that the institution's claim to autonomy and internal self-determination must be (and in our experience is) matched by responsibility. A system of autonomous institutions needs many sources of leadership.

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[1] Richard J. Meisinger, Jr.,"The Politics of Formula Budgeting: The Determination of Tolerable Levels of Inequality through Objective Incrementalism in Public Higher Education",Ph.D. Dissertation, University of California, Berkeley, California, 1975.

7. *Will be workable with institutional information systems existing at the time of implementation and capable of evolving with the information systems toward a desired level of sophistication without the need for parting from basic characteristics and definitions of the plan*

The proposed plan clearly meets this requirement. This guideline was perhaps one of the most difficult to meet and one of the most critical in project efforts to ensure that proposals are practical and workable at the time of implementation. It is very easy to be critical of the state of information systems in institutions of higher education in Alberta and anywhere. Nonetheless, the state of financial planning is not improved by saying things cannot be done because the available data base and information systems will not support it, nor is the state advanced by making proposals which are contingent upon future development of management information systems, either on the campuses or system-wide. The proposals resulting from this project can be implemented with data presented either in this report or in the other project documents. Further, as we pointed out before, and emphasize here, the theoretical and conceptual framework and language which the project has evolved and documented, provide a sensible context for the evolution of information system capacity[1] and financial planning.

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[1] An important recent step towards development of information systems was taken by the public college presidents by preparation of a May 10, 1975 proposal, "A Comprehensive Information System Requirements Survey and Evaluation for the Alberta Public Colleges System". AAEM funded the proposal and a committee on common information needs and systems (CCINS) was established to begin work. The Committee's initial recommendations are expected in the near future.

8. *Will recognize the relationship among financial, academic and physical planning*

The strict interdependence among financial, academic and physical planning is a major conclusion drawn and elaborated in Chapter III. As we have illustrated in the numerous discussions on the elementary model, throughout this report, the policy variables of the model are both academic and financial policy variables. The same variables have import for physical planning so that the extension of the project results to physical planning may proceed on the basis of the elementary model and that should be a desired route. One of the intents of the proposal for a three-year funding period is to encourage planning and the integration of the several planning processes.

9. *Will recognize societal demand on public colleges and universities for varied educational services as a factor in financial planning*
10. *Will not attempt to allocate funds on a basis which separates academic departmental research from instruction. However, the plan may deal explicitly with research as well as public service as primary programs*

The next two guidelines attempt to emphasize that while instruction is central, there are other demands on institutions of advanced education and that programs other than instruction may also be bases for funding. The project was faithful to the guideline that it would not attempt to allocate funds on a basis which separates academic departmental research from instruction. This guideline goes on to open the possibility that the plan may deal explicitly with research as well as public service as primary programs. Based on numerous discussions with people in the system and on the technical capacity of the system to provide information on primary programs other than instruction, the decision was taken to not pursue the option that the plan may deal explicitly with research, as well as public service, but implicitly through our "all other things are equal" assumption. This assumption is discussed in Chapter IV. I. c.

One of the uses of the institutional characteristic K, is that it allows for the "all other things are equal" assumption to be made differentially for each institution. That is, K permits differences in program mix in the triennium to be taken into account in funding. Thus, it is an important aspect of the plan that K can enhance some of the features of a student driven formula. Student numbers differentially influence the distribution of funds depending upon institutional characteristics at the institution of student registration. It is reasonable that if FTES is to be a proxy, the proxy relationship should be peculiar to each institution in the system. The policy decision associated with the determination of K, and the advice from the technical advisory panel provide the means that ensure that the numerous considerations beyond FTES, which are peculiar to each institution, are taken appropriately into account.

11. *Will be as comprehensive as possible in its implementation, so that Alberta funding outside the plan is minimal and based on agreed principles*
12. *Will recognize that shifts in institutional funding levels should be made thoughtfully and accomplished carefully over reasonable periods of time*

The guideline requiring that the plan be as comprehensive as possible has been met in that the plan accounts for 100% of AAEM operating funding to the eleven institutions. The requirement that the plan recognize that shifts in institutional funding levels be made over reasonable periods of time is accommodated by the recommendation of a phasing-in period. Also, the plan allows for funding which is essentially incremental, thus there is no need for sharp shifts in institutional funding levels.

13. *Will assume that the deleterious effects of inflation on institutions are taken into account in determination of the total operating funds voted to AAEM, and hence will not be primarily concerned with the problems caused by inflation*

14. *Will regard total institutional operating revenues but will not count capital or private funds (e.g., donations) in the "total" for financial plan purposes. Tuition income is included in the total*

The guideline with respect to inflation is provided for by the recommendation that AAEM policy be that institutional annual grants be in real dollar terms for a fiscal year. The 14th guideline is essentially a technical description of revenues which should be and should not be included for financial plan purposes. The recent discussions in the system in respect of tuition income underscores the importance of a guideline which required that tuition income be included in the total for financial planning consideration. A shift in the ratio of tuition income to grant income is a matter which must be approved by the Minister. Hence, for purposes of this plan, the "total" funds provided through AAEM policy are those provided by AAEM through the grant and through institutional tuition revenues in accordance with policies approved by AAEM.

15. *Will not be based on the results of any advanced education system-wide institutional program outcomes study*
16. *Will not be based on the results of any advanced education system-wide institutional program cost study*

The next two guidelines were important to the practical planning and effectiveness of the project. It was necessary to recognize in the beginning that within the various time and resource constraints on the project itself, that these extensive and difficult studies would not be undertaken, nor would results of such studies be available for project purposes. It is probably true that given other limitations and available data, the decision to give lower priority to outcomes and cost studies was a prudent one at this initial step. However, should the decision be taken to implement project proposals and encourage maturation of other components of the data base, then these sorts of studies should be encouraged. These topics may be referred to the technical advisory panel for discussion of the practicality of such studies and the usefulness of any results.

> *17. Will not encourage unnecessary proliferation of programs or institutional activities as a means to gain higher institutional or system-wide funding levels when the plan is considered in the overall context of Alberta policies and procedures*

This guideline, which required that the plan not encourage unnecessary proliferation of programs, has been satisfied. There is no intent or any recommendation to change the current AAEM policy and practice in respect of program approvals. This mechanism is discussed in the context of the planning process in Chapter III, and has been an effective mechanism against unnecessary proliferation and since the policy and practice are still in place, we assume the guideline has been met. Further, the simplification of the enrolment unit formula to one which does not differentiate by student academic program removes any incentive to proliferate programs thought to be funded above cost.

> *18. Will attempt to conciliate the concern of institutions that improvement in institutional effectiveness will lead to corresponding reduction in funding. Hence, the plan will attempt to provide an incentive for efficient institutional operation*

The proposed plan actually provides an incentive for efficient institutional operation. The plan encourages improvement of institutional and system information systems to support an analytic approach to planning and management. As system and institutional analytical capabilities are developed, an institution can more readily avoid being penalized for relative efficient operation. This would be done by convincing arguments resting on the objective basis of improvements in the values of institutional policy variables compared with sector averages. The technical advisory panel should address the availability of such comparable data. Further, since grants are made for a triennium, any annual savings (surplus) due to efficient operation may be redeployed by the institution.

Finally, to conclude this section, the preamble to the guidelines in *Planning Paper One* has the following which we simply repeat because we believe it is characteristic of project research and the proposed plan:

> The aim, then, is to provide assistance to Alberta Advanced Education and Manpower (AAEM) and the institutions in the pursuit of their objectives by suggesting a clear and readily comprehensible plan which contributes to equity and consistency in funding. Beyond this, desirable outcomes of the project and the plan may include promotion of the practical integration of financial planning with all planning, reinforcement of rational institutional budgeting procedures, as well as encouragement for the evolution of improved information systems in support of management and planning decisions at all levels.

### b. Issues and Concerns Current in Alberta

The purpose of the section with this title which appeared in *Planning Paper One* (67) was to present certain current issues and concerns that affect the project and to encourage discussion of them. The list was not complete nor were the topics explored exhaustively. There was a large number of items and the section was divided into three groups: Management, Information, and Procedures/Implementation. The discussions which allowed the project staff to isolate these issues and concerns, and the continued discussion of them after *Planning Paper One* appeared, have been very helpful in the process of narrowing the alternatives. We will not attempt a one-to-one mapping of the concerns to the proposals, but in general one can conclude that the proposals address many of the issues and concerns raised. This is particularly true in those areas that relate to the more technical questions of financial planning and information systems. Nearly a year after the interviews which generated the section in *Planning Paper One* on issues and concerns, the Project Reference Group compiled a list of criteria, which the members felt the financial plan proposals should address. Since the Reference Group criteria were built on the earlier discussions and now supersede these *Planning Paper One* materials, the next section will treat the project proposals against the backdrop of the current criteria and, hence, we will avoid a third discussion on the initial issues and concerns.

### c. Reference Group Criteria

The criteria, as these developed through several stages of Reference Group discussions, are shown in *Planning Paper Three*. The final form of the criteria are listed in order of priority, as determined by the Reference Group, in Appendix B and are repeated throughout this discussion for convenience.

*1.1 Autonomous reallocation of resources within institutions*

The autonomous reallocation of resources within institutions, the first priority criterion, is clearly met by the proposal on the block grant principle.

The high priority assigned to the global grant notion also influenced the suggestion that the non-formula (special) component of the grant be as small as possible. The decision on where to draw the line on interpretation of the block grant principle is a tough one. Should non-formula (special) be only contingency or should it contain a percentage for earmarked projects or programs? If so, what percentage of the grant should be earmarked? Our proposals are permissive, that is, there is no recommended value for the non-formula (special) grant component except the observation that it seems that one percent per year is needed for contingency.

The proposal permits the current practice of many special or earmarked grants for program development, public service, and so on, since a decision on the extent, in magnitude and specificity, of the non-formula (special) grant component is clearly a policy matter. The trade-offs with respect to earmarked grants might well be technical advisory panel discussion topics. AAEM may use earmarked grants to stimulate system response to system need. Institutional programs outside normal funding patterns are less likely to be seen on campus as competitive with existing programs and hence, earmarked grants may encourage creativity and innovation.

*2.1 Provides guidelines and information early enough for institutional planning*
*2.2 Rolling budget (at least tentative government commitment beyond one year)*

The second group of criteria calls for guidelines and information early enough for institutional planning and for a rolling budget. There was a project task on institutional financing procedures directed towards determining institutional systems and procedures in the annual budgeting process. This inquiry had the purpose of identifying for the project staff practical scheduling problems which implementation of a financial plan might accommodate. The project task and the institutional responses are given in Section 19 of the Financial Plan Project Supplementary Reference Document File.

The proposals which include a triennial funding period and a timetable which has the formal grant request procedures beginning in the second year of the triennium and institutional grants announced in the final year of the triennium should provide ample satisfaction for the second criteria set.

*3.1 Recognizes differences among programs and institutions*
*3.2 Provides sufficient lead time for budget preparation*
*3.3 Block (global) grant principle maintained*
*3.4 Adaptable to changing circumstances*
*3.5 Recognizes research functions*

The proposed institutional characteristic K is an explicit technique for taking institutional differences into account for funding purposes. The criterion which calls for block grant principle maintenance is of course satisfied and the analytical basis for the evolution of financial planning may be taken as response to the criterion requiring that the plan be adaptable to changing circumstances. While it is not a matter of explicit recommendation, the whole thrust of the ideas in Chapter III indicates that it perhaps is more likely that sufficient lead time for budgeting will be available in a context which can evolve in a direction that is more analytical, and for which funding is on a longer term basis. The requirement of the last criterion in the set, that the plan recognize research functions, is addressed by the program approach proposed, although the current Alberta data base and project guidelines suggest that the practical 'recognition' is our assumption that "all other things are equal". As mentioned before, institutional differences in research programs can be taken into account in the determination of the numerical value of K for a triennium.

*4.1 Responsive to measurable indicators of educational service demand (growth)*
*4.2 Related to educational plan*
*4.3 Encourages institutional efficiency*
*4.4 Program categories rather than line-item, object-of-expenditure*

The plan is responsive to measurable indicators of educational demand since the formula grant component is proportional to the number of full-time equivalent students. The grant distribution is clearly very sensitive to the definition of FTES including the categories of students counted and the method of calculating full-time equivalency. The proposed technical advisory panel may want to consider the various ramifications of alternative definitions of FTES. We have already discussed the notion that the plan should encourage institutional efficiency and that the general approach of the financing technique is along program categories rather than line-item or object-of-expenditure classifications. While the financial plan is not related to an educational plan (since an explicit educational plan does not exist) the thrust of the proposals indicates that we feel that financial planning should move in a direction which integrates all planning processes.

*5.1 Clear and easily understood by those who read it*
*5.2 Promotes program planning*
*5.3 Equal treatment of equal student categories (quality of programs and educational opportunity)*
*5.4 Recognizes economies and diseconomies of scale*

We will leave judgment of whether or not the criterion, that the plan be clear and easily understood, has been met, to the reader. The remaining criteria in this group are all satisfied by the various proposals. Clearly, the enrolment weight formula provides equal treatment for equal student categories and the institutional characteristic K takes into account economies and diseconomies of scale. The proposed program approach to the allocation problem, while limited in its present form, has the potential to expand with the capability of the data base and with maturation of a program approach in all planning processes.

*6.1 Establishes operating funds required by the system*
*6.2 Recognizes institutional cost differences (correlates funding with costs)*
*6.3 Provides scope for funding special and innovative projects*

Taken literally, the first requirement is beyond the terms of reference of the project. However, we have interpreted this criterion to mean that in an incremental sense, changes in the allocation units are an indication of changes in system resource requirements. Also, historical non-formula grants establish a base from which changing circumstances can be evaluated in terms of changes in resource requirements for specific programs and special circumstances. The judgments on the correlation between the system educational changes and the resulting changes in resource requirements are, of course, to be made by AAEM. The ultimate impact of these judgments on government priority for universities and colleges, and the funding to AAEM are clearly outside the scope of the advanced education "allocation problem". Yet, given the emphasis placed by this project on the relationships between allocation, budgeting and planning, there are ample suggestions for evolution of analytical techniques and systems which also have potential to support budgeting, should that prove appropriate to the funder. This is a suitable topic for technical advisory panel discussion.

The derivation of the enrolment weights, and the institutional characteristics are the clearest recognition of institutional cost differences. The financing technique's component for non-formula (special) funding should meet the final criterion in the group by providing scope for funding at the discretion of AAEM special and innovative projects.

7.1 *Assures continuity of funding to maintain existing service standards*
7.2 *Practical to implement (simple)*
7.3 *Sensitive to inflation trends*
7.4 *Equity-Fairness - should treat all institutions in the same way*
7.5 *Mechanism for new program introduction*
7.6 *Recognizes service functions*
7.7 *Recognizes capital needs and costs*
7.8 *Is an institutional and system planning tool*
7.9 *Fixed plus variable component formula*
7.10 *Allows for joint ventures with community (capital/operating)*

The plan assures continuity, in that there is a phasing-in period and by the fact that the initial application of the plan can be incremental, and hence allows for the maintenance of standards as required by the criterion. The plan is practical to implement as we noted previously. The plan is made sensitive to inflation trends by the proposal on this topic. The financing technique strives for equity and fairness by application of an allocation formula which, while treating all institutions and students in the same way, recognizes differences in institutional characteristics. There is no suggestion of change for the mechanism for new program introduction, so that this criterion is assumed to be met. As with research, an institution's service functions may be recognized in the determination of the numerical value for K, but there is no funding provided explicitly for the primary program of public service. This is a potential that can be developed, should it be thought desirable.

The proposed plan does not formally recognize capital needs and costs, since these are defined as being outside the scope of the project as explained in *Planning Paper One* (84). Nonetheless, the emphasis placed in Chapter III on the integration of financial planning with all planning, clearly addresses the inherent relationships between capital and operating resources needed to support educational and support programs.

Whether the plan turns out to be an institutional and system planning tool will depend on decisions beyond the project. But clearly, the plan has been proposed as an allocation mechanism with features which have potential usefulness in budgeting and planning generally. The allocation formula as proposed, does not have a fixed plus a variable component. The analytical approach to the alternative development of the institutional characteristic K does take a form which permits the institutional characteristic to depend on certain program costs (Plant and Property) which may be considered fixed if the funder wishes to emphasize that policy. The last criterion in this set calls for the plan to permit joint ventures with the community in the region served by the institution. This eventuality is allowed for under non-formula (special) grant components, at least as far as any operating expenses are concerned. Depending on the nature of the joint venture, it is certainly conceivable that major undertakings would have to be considered outside normal financial planning.

*8.1 Recognizes productivity*
*8.2 Recognizes regional differences*

Regional differences are not explicitly noted but are assumed to be accommodated by the institutional characteristics which are part of the allocation formula. The question of productivity was introduced in *Planning Paper One* (61). The essential difficulty with many discussions of productivity in education is the selection of suitable measures for inputs and outputs. The alternative analytical approach taken to the development of the allocation formula exposes a set of analytical factors which are said to be proxy for outcomes or activities, resources and other system policy variables. Consequently, the elementary model version of an allocation formula provides an opportunity for an analytical approach to recognition of productivity that is, nonetheless, still limited by the inherent problems of measurement and the current state of the data base. Emphasis on faculty salaries in the analytical determination of the institutional characteristic, for example, and the use of students as a "driving" variable is an attempt within the various constraints already discussed to take the legitimate concerns of 'productivity' into account.

*9.1 Objective*
*9.2 Promotes comparable financial information and standard financial statements*
*9.3 Recognizes differences in plant operation and maintenance costs*
*9.4 Allows certain capital and operating budget exchanges*

We feel that the plan has the potential for lending considerable objectivity to the allocation process. Since the plan employs a formula as the primary means of allocation, it has many of the desirable features of formula financing techniques. The plan provides an objective accommodation of the many competing interests by providing a framework for discussion, and delineating the elements of debate, data and analysis. It reduces uncertainty in the budget process and tends to set a limit to the size of increments and decrements. Generally, the plan provides an objective basis for determining fair shares. At the same time, the plan permits exercise of human judgments that must be taken in areas that cannot be adequately quantified nor for which formulas alone do not provide a continuing and satisfactory resolution.

The next criterion requires promotion of comparable financial information and standard financial statements. Our proposal on information for planning and management is expected to be an effective step in encouraging practical evolution of compatible information systems. The illustrative analytical determination of the institutional characteristics is based on the premise that this sort of information is available to a certain extent already. Before the beginning of the next triennium, with the appropriate incentives, there could be considerable further improvement in comparable financial information and the comparability of information presented in financial statements by the institutions. The recognition of differences in plant operation and maintenance costs is one of the features of the alternative development of institutional characteristics. Plant and Property (PCS 6.5) is one of the few programs for which the data base permitted experimentation.

The plan does not provide any explicit possibility for the next criterion, that is, to allow certain capital and operating budget exchanges. The general attitude that we have taken toward this criterion is that it represents a policy that has ramifications beyond the colleges and universities and is a matter of AAEM and government accounting practice and policy. Therefore, the present proposals do not specifically address this opportunity, although of course, it is not explicitly excluded. The concerns represented by this set of criteria would be usefully discussed by the technical advisory panel.

*10.1 Promotes appropriate accountability criteria*
*10.2 Neutral on institutional use of surplus (accumulated) funds*

The analytical framework and the technical language developed by the project can assist the procedural aspects of accountability by showing that the allocation process rests on a logically sound basis. The substantive aspects of accountability are advanced by the emphasis placed on comparable information and information on the important policy variables which may become more central to financial planning. The proposals do not address the question of institutional surpluses in the sense that it is assumed that there is no change in AAEM policy in this regard. However, since the proposal is for a three-year funding period, institutional use of annual surplus funds in a triennium, is not subject to AAEM regulation.

*11.1 Provides incentive for program evaluation by campus budget units*
*12.1 Does not require additional staff to implement*
*13.1 Recognizes relationship to PAI's*
*14.1 Neutral on tuition fee component of institutional revenue*
*15.1 Does not discriminate between credit and non-credit instruction*

The last five criteria have, of course, lower priority than the ones already discussed and we will treat them briefly. The plan has the potential of providing incentive for program evaluation by campus budget units in the sense that it promotes a program and analytical approach through the alternative calculation of the institutional characteristics. The plan does not require additional institutional staff to implement nor does it recognize any special relationships to the provincially administered institutions. In this latter case, the relationships of the universities and colleges to the other institutions of advanced education have been considered technically outside the project, but again, given the general systems approach, the potential and the bases are there for recognition of these relationships which of course are continually under consideration by AAEM. We have already discussed tuition fees. The last criterion is satisfied to the extent that the plan provides for both credit and non-credit instruction. Other instruction subprograms would, if the "all other things are equal" argument does not apply to any particular institution, become part of the case for a particular numerical value for K. Also, the non-credit aspects of the instruction program (including PCS 1.5, 1.6, 1.7, 1.8, 1.9, as well as public service 3.4) may become topics for discussion by the technical advisory panel. This discussion could be linked to the one proposed on the definition of 'FTES' as used in the allocation formula.

The above discussion related the criteria, thought most important by members of the Reference Group, to the various project proposals. It is evident that the proposals, to a very large measure, satisfy the criteria. These criteria may evolve as experience with the plan is gained. Advice on adaptation of the plan to better meet these and new criteria thought important by system members will undoubtedly arise in the discussions of the technical advisory panel. It is important to recognize that the system of advanced education as a whole and as represented by its parts, is a living system that must respond to ever-changing circumstances; thus, while a plan may be acceptable and workable at one point in time, its long-term vitality and effectiveness will depend upon its adaptability to change and the procedures and methods used to effect those changes.

## E. Continuing Requirements of Financial Planning (The Widening of the Hourglass)

Early in the project, it was necessary to make a fundamental decision. Should project proposals provide minor adjustment and fine tuning for the present methods or should they provide AAEM with the opportunity to consider rather basic changes in its approach to the allocation of operating funds among the institutions? While there had been relatively little demand for radical change, there had been the long standing expectation of a review of allocation methods. This expectation and the difficulties and delays associated with a review of present methods suggested that proposals for a financial plan, even if they met all the criteria imposed by project terms of reference would not be helpful in the long run, unless there was a means to change the plan as circumstances change. The project staff concluded that even though current methods may be adequate and could be improved by minor adjustments, confidence in any proposals would be enhanced if all alternatives were explored, and the range narrowed by Alberta circumstances to the best alternative(s).

The proposals made in this report represent the result of the narrowing of the alternatives to a practical set, some of which may be applied in a way not very different from present methods. These may even be viewed and applied as supplementary to existing procedures - as means to gather intelligence in support of, or auxilliary to the present way. However, the proposals offer the clear opportunity and are primarily intended to offer the opportunity to AAEM to take a new tack with respect to financial planning. As we have illustrated, the proposals suggest that financial planning move towards a more comprehensive and analytical approach and, hence, gradually away from the incremental methods which characterized the allocations of the past few years.

The decision to explore the widest possible range of alternatives, required that this study take a more general, somewhat abstract approach. A detailed descriptive review of alternatives for which information is available would be practically impossible to complete in a reasonable period and if done, still may not prove to be exhaustive and certainly not be current. Thus, it was necessary to step back from the immediate search for alternatives and to review the theoretical basis of the allocation problem. As we noted in *Planning Paper One*, it was apparent that there was not a common language nor a set of shared concepts on financial planning, which would allow ready communication on the topic among people in Alberta. The literature on the allocation problem in higher education is extensive but mostly descriptive of practice in other jurisdictions. Thus, it was necessary to provide much of the general framework within which the study of alternatives could occur. Thus, we perceive that an important part of project work was research directed to the question of how to develop and present all the real alternatives so that the actual, practical options and their consequences are evident. We felt it was essential to provide a vehicle for considering alternatives independently of the circumstances (often called crises by advocates) which sometimes occasion suggestions for change.

If the financial planning process were not subject to change, there would not be a compelling reason to pursue these items beyond the original proposals. However, the financial planning process must continuously respond to changing circumstances. The general concepts and techniques which lead to the proposals have merit for the continuing evolution of financial planning.

Hence, if a decision is taken to move in the direction suggested by the proposals, the very general and somewhat theoretical approach taken will be valuable to those whose responsibility it is to maintain and improve financial planning.

### a. Considerations in the Evolution of a Financial Plan

There seem to be five major technical or general considerations in the development of a financial plan and hence in the logical evolution of one. These are:

1) Planning in Higher Education
2) Concepts and Language
3) Alternative Plans and Financing Techniques
4) The Jurisdictional Context
5) The Data Base

The first consideration is the planning context. That is, while the features of a financial plan are important in a funding period, it is equally important in the long run that the essential characteristics of planning as a process not be forgotten. We are not here interested in educational or academic plans or policies per se, but are concerned that financial planning proposals recognize the nature of planning in higher education and, of course, recognize that financial planning is an inherent component of the overall planning and management process. In Chapter III, we provided a picture of planning in Alberta advanced education against a backdrop of general planning ideas and compared Alberta circumstances to planning in a jurisdiction which exhibits many of the characteristics of a more comprehensive approach to planning. The material developed in Chapter III is an essential part of the background for continuing discussions, beyond the project, on the topic of integration of financial planning with all system planning and management.

The second consideration in the evolution of a financial plan is the technical context provided by the concepts and language developed and described throughout the project. These are essential to the discussion of alternatives. These notions form a realistic and correct framework of fundamental ideas and a language precise enough to allow important distinctions to be made and technically accurate conclusions to be drawn. More specifically, the set of concepts provides a basis for the development of categories of alternatives, and it serves also in the important task of narrowing the range of alternative solutions which seem to be in the highest payoff area and need concentrated examination. The technical language of communication permits a more rigorous study of the alternatives. It is not a new scientific language but the consistent use of certain words to describe notions which have fairly precise meaning for financial planning purposes. We believe that the material presented in Chapter III on planning in higher education and the emphasis on certain technical concepts in Chapter IV provided a sound technical basis and framework for the development of proposals and will be useful for their continuing evolution.

The alternative plans and financing techniques employed in other jurisdictions now or previously are many and together sketch the state of the art in practical financial planning. Yet, given our theoretical approach, we have been able to analyze and distill the essence of many by the judicious examination of only a few. This has permitted a more critical evaluation of alternatives against our Alberta circumstance than if our approach had been purely descriptive. Moreover, we now have the basis for future work. The alternatives examined in Chapter V are classified and evaluated so as to be of continuing interest to those who pursue future work on Alberta financial planning.

The fourth consideration is the jurisdictional context and in our case, the Alberta context for financial planning. Beyond the project guidelines and the issues and concerns presented in *Planning Paper One*, we have in this report presented extensive material in Chapter III on the planning process in Alberta advanced education. We are satisfied that the proposals in this report more than adequately account for the objectives, policies and programs of AAEM. Since it is essential that any advance on the present proposals also be based on the best available information on the planning processs in Alberta advanced education, the ideas developed during the project should continue to be useful. Another part of the Alberta context has been summarized by the criteria suggested by the project Reference Group and treated earlier in this Chapter. No doubt, these criteria will remain current through technical advisory panel discussions.

The final element in the development of the financial plan, which deserves continuing consideration in any evolution of the plan, is of course the capacity of Alberta information systems to supply planning and management information for institutional and system financial planning. This subject has been treated amply in earlier planning papers and the details will not be rehearsed here. However, it is important to emphasize that the practical nature of the proposals in this report has been ensured because we have insisted that proposals be implementable, given the state of the Alberta data base at the time recommendations are made. While this underscores practicality, it also limits proposals to the capability of information systems to supply appropriate information. Thus, the extensive project materials presented on the Alberta data base and the descriptive and theoretical discussions should prove useful in efforts to maturate the data base in a way that will complement and encourage further developments of an analytical and comprehensive approach to financial planning.

The specific proposal that a document, essentially in the form of *Planning Paper Two* be produced annually by the system, is considered an achievable and practical first step in a process that can ultimately provide Alberta with a significantly improved information capability including the ability to exchange institutional information, which is comparable and well enough understood to be useful in system and institutional planning and management. We do not propose a more direct attack on the state of the information base, in part, because our experience is that information systems which will be most valuable in financial planning and all system planning and management must evolve out of a conviction, widely held, that such information systems are worth the effort required in their development and cooperative maintenance. The proposal for annual collection of comparable statistics for the eleven institutions is now known to be realistic. The many limitations of these data are evident to institutional and system people concerned with planning and management. The effective improvement of these data and consequently the associated information systems, we believe, is most likely to occur as a by-product of the planning and management process, for which the payoffs are clearer, rather than efforts, which have not been successful in the past, towardsthe somewhat abstract and idealistic goal of better information systems for all purposes.

We feel that the basic and general information provided in various project papers are very much part of a step and a direction towards a more comprehensive approach to financial planning. The value of these materials is in their use in continuing financial planning discussions at AAEM and within the technical advisory panel, as well as in discussions which transcend only financial planning and relate to broader questions of system planning and management. We have presented, therefore, the basis for further evolution of the proposed financial plan. As policies change and as organizational structures change, consideration of the five general topics will permit the financial plan to change and evolve so as to remain current and useful. Financial planning is not the isolated allocation problem. It is a complex set of priority decisions made throughout a process which recognizes the interdependence of components of a system and the steps of a complex process. As we hinted in Chapter III, it is not hard to convince one's self, that *the process is the plan.*

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# APPENDIX A

# FINANCIAL PLAN PROJECT - TERMS OF REFERENCE

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## FINANCIAL PLAN PROJECT - TERMS OF REFERENCE

The process of financial planning facilitates the achievement of desired educational outcomes within a constrained resource environment and includes those methods, techniques and procedures which define recurrent (operating) resource requirements as well as the means of estimating and allocating financial support requirements for institutions. Financial planning transcends any fiscal year and expresses financial strategy.

The Financial Plan Project has been established as a two-year study, the purpose of which is to recommend for Alberta a financial plan and associated techniques and procedures for financing public colleges and universities. Such a plan must accommodate policies and objectives of the Government of Alberta, the public colleges and the universities. It must, as well, accommodate the essential differences among institutions and subsystems. In addition, the plan must have sufficient structure and definition to provide a facilitating framework for annual budgeting processes at the institutional, subsystem and system levels. Therefore, input will be sought from institutions, from Government and from knowledgeable individuals in order to take into account their concerns on how financial planning should be structured to assist all parties to perform their roles. It is expected that the two-year study will include the following:

1. The review and evaluation of alternative financial plans, including current Alberta plans, techniques and procedures and those used in other jurisdictions.
2. The organization of reference groups from among those persons with an interest in or affected by financial planning in the public colleges, the universities, Alberta Advanced Education and Manpower and elsewhere.
3. The gathering, analysis, and presentation of historical, current and projected information related to financial planning, including interprovincial and interjurisdictional comparative data where relevant.
4. The review of Alberta Advanced Education and Manpower and appropriate institutional records, documents, systems and procedures.
5. The organization of various meetings and seminars and institutional visitations.

The financial plan recommended as a result of this project will not specify the dollar amounts required to maintain the public colleges or the universities in each or any year for a number of years in the future. The plan provides, however, the means for determining operating resource requirements, given certain inputs regarding future circumstances--for example, total funds available to colleges and/or universities, student enrolments, Government and institutional priorities for new and continuing programs and general public and institutional policies.

While precise timelines for the project are yet to be determined, it is expected that the outcomes of the project and its recommendations will have a bearing on financing methods and procedures used for the 1978/79 fiscal year.

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# APPENDIX B

# REFERENCE GROUP CRITERIA

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## REFERENCE GROUP CRITERIA

1.1 Autonomous reallocation of resources within institutions.

2.1 Provides guidelines and information early enough for institutional planning.
2.2 Rolling budget (at least tentative government commitment beyond one year).

3.1 Recognizes differences among programs and institutions.
3.2 Provides sufficient lead time for budget preparation.
3.3 Block (global) grant principle maintained.
3.4 Adaptable to changing circumstances.
3.5 Recognizes research functions.

4.1 Responsive to measurable indicators of educational demand service (growth).
4.2 Related to educational plan.
4.3 Encourages institutional efficiency.
4.4 Program categories rather than line-item, object-of-expenditure.

5.1 Clear and easily understood by those who read it.
5.2 Promotes program planning.
5.3 Equal treatment of equal student categories (quality of programs and educational opportunity).
5.4 Recognizes economies and diseconomies of scale.

6.1 Establishes operating funds required by the system.
6.2 Recognizes institutional cost differences (correlates funding with costs).
6.3 Provides scope for funding special and innovative projects.

7.1 Assures continuity of funding to maintain existing service standards.
7.2 Practical to implement (simple).
7.3 Sensitive to inflation trends.
7.4 Equity-Fairness - should treat all institutions in the same way.
7.5 Mechanism for new program introduction.
7.6 Recognizes service functions.
7.7 Recognizes capital needs and costs.
7.8 Is an institutional and system planning tool.
7.9 Fixed plus variable component formula.
7.10 Allows for joint ventures with community (capital/operating).

8.1 Recognizes productivity.
8.2 Recognizes regional differences.

9.1 Objective.
9.2 Promotes comparable financial information and standard financial statements.
9.3 Recognizes differences in plant operation and maintenance costs.
9.4 Allows certain capital and operating budget exchanges.

10.1 Promotes appropriate accountability criteria.
10.2 Neutral on institutional use of surplus (accumulated) funds.

11.1 Provides incentive for program evaluation by campus budget units.

12.1 Does not require additional staff to implement.

13.1 Recognizes relationship to PAI's.

14.1 Neutral on tuition fee component of institutional revenue.

15.1 Does not discriminate between credit and non-credit instruction.

# APPENDIX C

# CROSS-CANADA SURVEY OF FUNDING PROCEDURES IN POSTSECONDARY EDUCATION

## APPENDIX C

## CROSS-CANADA SURVEY OF FUNDING PROCEDURES IN POSTSECONDARY EDUCATION

Terms of reference of the Financial Plan Project included a requirement to conduct a review and evaluation of financial plans, techniques and procedures used in other jurisdictions. A review of literature on recent developments in other provinces, and in several cases correspondence, telephone discussions, and personal visitations to provincial and institutional representatives, provided information for the following summary. Because of the impact of collective bargaining on financial planning [see Appendix Q, "Collective Bargaining and Financial Planning"], this summary also includes for each province a brief commentary on the status of collective bargaining for academic staff in colleges and universities.

### A. Federal Involvement in Postsecondary Planning and Financing

While the focus of the Project is directed at recommending a provincial financial plan for advanced education, there are federal roles in the nation's postsecondary system which are recognized contributors to the complex nature of comprehensive, systematic planning and financing at the provincial level.

Officially, there is no federal educational policy. OECD examiners have recently observed that in the absence of educational policy at the higher federal decision-making level, federal agencies view education as an instrument for their missions.[1] Typically, federal agencies concerned with manpower policy, social policy, general economic policy, regional development policy, science research policy, foreign policy, and so on have a significant impact on educational planning and financing, although there is no explicit federal educational policy. Federal funds for educational purposes exceeded 2.5 billion dollars in 1975, the grants being made either through the provinces or directly to institutions, typically by the following federal departments and/or programs:

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[1] The OECD Examiners and Members of the Canadian Delegation, Reviews of National Educational Policies for Education: Canada, (Paris: Organization for Economic Cooperation and Development, 1976), page 93.

Fiscal Transfers for Postsecondary Education
Department of Indian and Northern Affairs
Department of National Defence
Federal Prison Service
Occupational Training of Adults
Citizenship and Language Instruction Agreements
Textbook Agreement
Teaching of Official Languages
Department of Regional Economic Expansion
Research Grants and Fellowships
Contracts
Excise Tax Exemption
Canada Student Loans Plan
Allowances, Bursaries, Scholarships and Fellowships
Income Tax Reductions

Federal agencies and departments continue to be involved in such postsecondary planning activities as enrolment projections, salary comparisons, cost studies and research policy formulation. Although federal-provincial coordination is attempted at ministerial, sub-ministerial and administrative levels, one can expect that implementation of provincial plans in postsecondary education will occasionally be affected by federal programs which may either complement or contradict provincial objectives.

## B. Review of Provincial Financial Planning Techniques and Procedures

Canadian provinces do not have systematic and comprehensive long-range planning processes from which longer range financial plans are developed and updated for their postsecondary education systems. In many cases, longer term plans have been made and implemented for capital development or new programs. In a few cases a specific sector of a postsecondary system will have longer range plans which clearly affect annual financial allocations. Very few institutions have published even general long-range plans, and only in Quebec has there been a reasonably sustained and visible effort to review institutional goals in relation to the needs in a total provincial system of postsecondary education. These circumstances are both cause and effect of provinces not having long-range fiscal plans or even guidelines with respect to postsecondary education, other than the occasional and general statement from a government regarding the current period of financial restraint.

For the most part, postsecondary education financial planning takes the form of annual budget activities, with considerable variation from province to province. Recent surveys indicate the following types of activities are those from which each province and system of postsecondary education each draws its own characteristic set of budgetary procedures.

TYPICAL BUDGET TASKS AT VARIOUS LEVELS

| ACTIVITY | Legislature | Cabinet | Cabinet Committee or Treasury Board | Government Dept. | Commission or Co-ordinating Agency | University Collectivity | Institution | Faculty | Department |
|---|---|---|---|---|---|---|---|---|---|
| 1. Prepare budget guidelines |  | X | X | X | X | X | X | X |  |
| 2. Conduct analysis of specific issues. Examples: new program development, "rationalization" of resource use. |  |  | X | X | X | X |  |  |  |
| 3. Prepare enrolment projections |  |  | X | X | X | X | X |  |  |
| 4. Compile salary and cost comparisons |  |  | X | X | X | X | X |  |  |
| 5. Review programs. Examples: course offerings, standards. |  |  |  |  |  |  | X | X | X |
| 6. Review formulas. |  |  | X | X | X | X | X |  |  |
| 7. Prepare budget request (varied detail). |  |  |  | X | X |  | X | X | X |
| 8. Prepare supporting documentation. Examples: cost factors, work load indicators. |  |  |  |  | X |  | X | X | X |
| 9. Submit budget request. |  |  |  | X | X |  | X | X | X |
| 10. Receive budget request. |  | X | X | X | X | X | X | X |  |
| 11. Conduct/attend meetings and hearings. |  |  | X | X | X | X | X |  |  |
| 12. Visit campuses. |  |  |  | X | X |  |  |  |  |
| 13. Review budget requests. |  | X | X | X | X | X | X | X |  |
| 14. Recommend on budgets. |  |  | X | X | X | X |  |  |  |
| 15. Receive, debate and decide on estimates | X | X |  |  |  |  |  |  |  |
| 16. Receive appropriation. |  |  | X | X | X |  |  |  |  |
| 17. Distribute appropriation to institutions. |  |  | X | X | X |  |  |  |  |
| 18. Approve detailed budgets. |  |  | X | X | X |  | X |  |  |
| 19. Make budget allocations. |  |  |  |  |  |  | X | X |  |
| 20. Submit budget adjustments. |  |  |  |  |  |  | X |  |  |

In general, the annual financing process at the level of treasury boards, cabinet and legislature treats postsecondary education as one major program, in competition with other social programs, in the light of revenue opportunities. The process at these government levels appears to be primarily political and little documentation exists on criteria and other information which affects allocation decisions.

Some provinces have coordinating agencies or councils which serve between the postsecondary institutions and the provincial government. Authority of these coordinating agencies varies from province to province and the extent of advisory versus controlling responsibilities on financial matters is not always clear. Features of the particular "asking" and allocation process in each province depends upon a number of factors including the following:

1) The extent of traditional government control over postsecondary institutions and the attendant demands for accountability.
2) The emphasis on accountability within institutions and at the level of the coordinating authority.
3) The particular problems of the day such as anti-inflation policies which may over-ride established allocation procedures.
4) The size and complexity of the system in terms of numbers of students, institutions, and size of the total postsecondary grant.
5) The extent to which the postsecondary institutions are viewed or act as part of a system.

The different provincial profiles which result from these factors do not lend themselves to a simple, coherent structure for classification of financial planning practices. Therefore, the provincial summaries which follow will provide a brief narrative of recent financing practices by provinces.

The extent of faculty collective bargaining at universities across Canada has altered significantly over the last five years. Only the faculty at the University of Montreal were a certified collective bargaining agent in 1971. In the latter part of 1976, 27 faculty associations were certified, were seeking certification or had some form of voluntary recognition from their employer. Seventeen universities engage in "legal" status collective bargaining, that is, the faculty association has been certified as a trade union under the respective labour relations legislation, several others are in the process of seeking certification, and across Canada, approximately half the universities are covered by some form of collective agreement. Nearly all faculty members in Canadian public colleges are organized for collective bargaining purposes, either under the terms of provincial labour acts or through provincial civil service associations.

## British Columbia

Prior to 1972, financing in postsecondary education was a simple process whereby the government determined the global sum for the Department of Education and for the universities. A Financial Advisory Board, consisting of representatives of the Universities and the Department, made recommendations to the Department regarding the allocation within the university sector. Financial allocations to the universities became a matter of negotiating a compromise among the institutions. Allocations to the colleges were decided by Department officials after obtaining information and submissions from local Boards of Trustees and the college councils.

Until 1973, relationships between the universities and the government were distant, with minimal requirements for reporting budget detail, enrolments, costs, workloads and salaries.

After the change in government in 1973, the British Columbia Universities Council was created as an intermediary body. Financial powers of the Council include recommending on universities funding support to the Minister of Education and receiving and distributing capital and operating funds allocated by the Government. The next election in 1975 changed the government again and it appears that although the Council has government support, the fiscal position of the province has made it difficult for the Council to establish stable financing procedures. The change in government in 1975, staff freezes and Anti-Inflation Board involvement in staff salary negotiations are among the other cited items which have been obstacles to more fully developed financial procedures.

When the new government made provisions for universities, the Council recommended an allocation based primarily on rationalizing new programs and, where possible, avoiding duplication. The grants to institutions do not appear to have specific restrictions and no mechanisms exist to ensure that approved programs are implemented. The Council is developing new reporting requirements and is examining its role with respect to cost studies and program analysis. The preparation of universities' line budgets and the budget review by Council does not take place in the light of any long-term planning guidelines. Council is attempting to implement a three-year planning cycle with annual updates. Although participants in the budget process agree that current fiscal procedures should be improved, there is no consensus on how to proceed. Differences of opinion exist regarding longer term goals and plans and although the Council has authority to require the universities to prepare academic plans, there is no mention of "goals" and no clear definition of "academic".

Community colleges in British Columbia are directly responsible to their local communities in almost every respect, including finance, governance, curriculum and administrative policy. Modelled on the California community college system, colleges are planned, established and maintained through boards of school trustees either independently or in collaboration with boards from other school districts. Colleges are governed by a college council composed of members appointed by participating boards, by the Minister of Education and by the Cabinet. A college council is responsible for the management of college affairs including financing, and its role is that of agent of the participating Boards.

Financing the colleges is similar to the schemes which apply to the public schools. The annual provincial grant for operating funds of each college is not less than 60% of the approved essential expenses. The remaining 40% of operating funds are met from local property taxation and tuition fees.

The information gathered by the Ministry of Education from the colleges for financial analysis includes budget data which correlates historical and current year's budgets to student contact hours. Budgeted funds are arrayed across five functions, some of which are further categorized, as follows:

1) Instruction (academic and technical, nursing and aviation, vocational, non-credit)

2) Administration (council, college, support services, computer services)

3) Facilities Service

4) Media Services (library, audio-visual)

5) Student Services

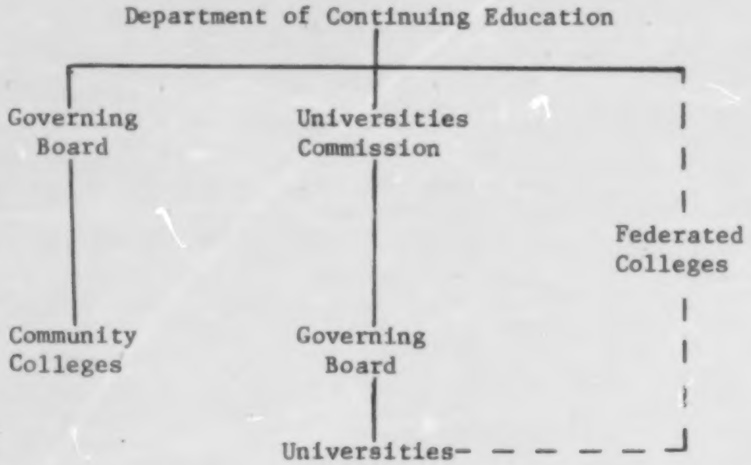
Within each budget function there is a potential for 23 types of expenditure.

In addition to gathering budgetary information the Department of Education obtains annually, detailed information, by instructional program, on faculty, faculty workloads and enrolment. Enrolment reports, by program, are also gathered monthly, in a manner that allows study of monthly training days and attrition rates.

Regarding collective bargaining in British Columbia, Notre Dame University was the first English speaking university faculty union in Canada and currently has 35 faculty in the bargaining unit's fourth collective agreement. The University of British Columbia has 1800 members in the bargaining unit. The faculty association is not certified as a trade union, but there is a memorandum of agreement between The University of British Columbia and the Faculty Association of The University of British Columbia, outlining certain terms and conditions of employment. Almost all of the college faculty associations in British Columbia are certified as the bargaining agent for their faculty under the Labour Relations Act. The technical-vocational faculty are organized by the British Columbia Government Employees Union.

## Saskatchewan

The university and college components of the postsecondary sector relate to the Minister and Department of Continuing Education as shown below.



The fourteen community colleges are relatively new, entering their second year of operation in most instances during 1976-77. The colleges are run by a governing board, and funding requires a line budget analysis by the Department in which budgeted income generated is taken into account. Departmental approval is required for various budget items such as tuition fee levels and salary changes.

The universities prepare a preliminary "asking" budget in the early fall. These preliminary versions receive a review and general indication of support by the Commission. In mid-October, the universities submit revised detailed estimates for Commission review by mid-November. Review procedures are still under development, but they currently consist of assessments of the underlying assumptions about growth of enrolments and costs that are reflected in the submissions, as well as a review of proposed new programs. The Commission reviews and refines the proposed budgets with the universities and then incorporates a request for university funds along with a request for its own operating funds. The Commission serves as a screening device and advises the Minister on the level of funding required. No detailed budget is required by government, but continuing money is differentiated from new money for new programs or developments, with explanation required for the need for new money. The Minister meets directly with the Commission to review the budget request before making a decision on the appropriate funding level to go forward to government.

Three colleges are federated with the universities and have hitherto received direct funding from the Department on the basis of a formula which takes into account enrolment levels and corresponding costs in the universities to which it is federated. Commencing 1976-77 this formula has been used, with some adjustment, to establish a base for 1975-76, and a percentage increase is being applied. This is considered to be more in keeping with the Anti-Inflation Board program at a time of relatively static enrolment.

Once the Department has agreed to specific levels of funding for the universities sector, the Deputy Minister incorporates the levels into the Departmental budget. The Departmental budget is reviewed by the Budget Bureau, a screening body for Treasury Board, who make their recommendation to Treasury Board. Treasury Board then recommends to Cabinet for incorporation into the estimates for legislative approval.

Regarding collective bargaining in Saskatchewan, the faculty associations of both universities, Regina with 300 members and Saskatchewan with 800 members, have applied for certification but hearings are proceeding slowly. College faculty members belong to the provincial government employees union and negotiations for faculty occur as part of province-wide bargaining. Often special sub-contracts or clauses are incorporated to recognize differences between instructors and other members of the provincial union.

### Manitoba

The Universities Grants Commission reports and recommends to the Minister of Colleges and Universities Affairs on financial needs and allocations for the three Manitoba universities and St. Boniface College. The Community Colleges Division of the Department of Colleges and Universities Affairs is responsible for the overall planning, development and management of the three Manitoba community colleges.

For universities, the financing system prior to 1973 had been based upon budget submissions to the Universities Grants Commission. The Commission would evaluate the submissions, then subsequently make an aggregate request for funds to the government. After legislative approval of the total budget estimates, the U.G.C. used until 1973 a 1966-67 University of Manitoba cost study as a guide to a weighting formula system for disbursements of grants to each institution. Thus, the student program costs served as a proxy for the measurement of all operating costs for each university, except for certain expenditures such as debt repayments and servicing. In 1973, updated cost study information led to revisions of the allocation formula for each of the four institutions involved. However, supplemental grants were still required for St. Boniface College and the new formula weights were never used for grants to Brandon University in that financial difficulties resulted in this university being funded on a block grant basis.

For the fiscal year 1976-77, the formula distribution of funds to the institutions was suspended by the Commission for the following reasons:

1) The Task Force on Postsecondary Education in Manitoba recommended, and the U.G.C. adopted, the category financing technique whereby university operating budget components are separately identified for funding purposes.
2) The impact of collective bargaining, particularly at one of the institutions, was creating difficulties with the traditional formula system based on enrolments.
3) Uncertainties in enrolment projections were not conducive to the traditional enrolment driven formulas.

Consequently, for the fiscal year 1976-77, the category financing approach recommended by the Task Force was adopted. This results essentially in each institution receiving a block operating grant. Institutions are expected to be able to produce year-end expenditure reports by category, but transfers of funds among budget categories are not controlled by the Commission.

During the summer of 1976 the Commission advised the government that the universities favored longer term financing as a basis for planning. The government later requested that the Commission and the institutions develop a five-year budget forecast. By the fall of 1976, institutions had forwarded their five-year forecasts including a statement of the guidelines used, descriptions of possible new academic developments, proposed program changes, and support needs. The government has indicated that the five-year forecast will have a bearing on considerations of the 1977-78 spending estimates, but it is not yet clear what form any longer term financial committments will take as a result of the five-year forecasting procedure.

The community colleges are funded in a manner similar to that of other government departments. Efforts at long-term planning have been made for the college system, but the links between plans and longer term financing are not yet apparent. Salaries and other staff benefits are the subject of negotiation between the government and the Manitoba Government Employees Association. As with other government departments, an extensive and comprehensive form of program planning and budgeting is used to support annual capital and operating estimates for legislative approval. Although major changes have occurred in the preparation of detailed estimates over the past few years, the annual process still involves the identification of funds expended and required, by program. Recent procedures in developing departmental estimates include supplying program information as follows:

1) A concise narrative of the origins of the program, tracing its development during the years and highlighting significant changes in policy, level of needs met, and social and environmental conditions affecting demand.

2) Current target population characteristics including numbers and geographic location.

3) Specification of program objectives in terms of impact on the consumer of the service.

4) Reference to general program policy guidelines as found in statutes, regulations, approved cabinet submissions and so on.

5) Operational targets expressed in terms of resource inputs (staff man years and dollars), and program outputs (numbers of persons trained or descriptive notes), indicating in concrete terms the program direction over short, mid and long-term.

6) List of activities performed and their relationship to program objectives.

7) The extent to which expenditure levels are fixed by legislation, contract, regulation, etc.

8) Listing of similar programs or services provided to the same target population, and the extent of program coordination.

9) A statement of criteria used to assess program efficiency and effectiveness.

10) Suggested social or economic indicators which could be used to measure program success.

The current budget estimates process for the colleges is supported by a management information system with a central computer service, as well as increasing emphasis on subject cost analysis. Colleges are responsible for both quantification and justification of resource requirements, and in working with historic data and enrolment projections the three colleges prepare, in a prescribed format, the budget detail including rationalization of the request and a productivity analysis relating resource inputs to training outputs.

There is evidence that substantial quantities of information gathered from the institutions is compiled and summarized as reference material in support of budget estimates to cabinet. Such reference material contains enrolment data including clientele characteristics, staff data including workload measures, a variety of program performance indicators and the Department's priority order for the use of new program funding.

The Colleges Division of the Department serves in a consultative capacity during budget estimate preparation, but ultimately has the responsibility to approve or disapprove college budget submissions, negotiate resource requirements with central government agencies, and to allocate resources among institutions and programs.

Regarding collective bargaining in Manitoba, The University of Manitoba, with 1000 members in its union, has its second collective agreement in force with the Faculty Association, the School of Social Work Faculty Association, the School of Medical Rehabilitation Faculty Association, and the Foods and Nutrition Faculty Association. Their inclusive collective agreement contains provisions regarding not only the terms and conditions of employment included in a "standard" collective agreement, but also provisions pertaining to hiring, promotions, procedures for payment, procedures for administering the equities fund and redundancy.

College faculty are included in the Manitoba Government Employees Association, and are covered by collective agreements reached between the Association and government.

## Ontario

Postsecondary institutions in Ontario receive government funds through the Ministry of Colleges and Universities according to formulas. The twenty two Colleges of Applied Arts and Technology received operating grants on a formula basis since 1972, and after a one year interruption of formula use in 1975, are now funded according to a revised formula grant system based on a plant and property grant and an activity grant. Ontario universities have received government grants since 1967 according to a formula which converts enrolment to basic income units through a scheme of program weights, then multiplying by a prescribed dollar value per basic income unit.

In the universities sector, which includes for formula funding, Ryerson, the Ontario College of Art, and the Ontario Institute for Studies in Education, the value of the basic income unit (BIU) is set annually by the Government on the advice of the Ontario Council on University Affairs. The scheme of weights applied to enrolment is intended roughly to reflect the relative costs of various types of instruction offered, but it is felt that no exact relationship is possible or necessary. For different programs of study, different standard fees are established. Each institution's formula operating grant is calculated by deducting the total of such standard fees from its basic operating income. Enrolment categories have been kept to eight with weights ranging from 1 to 6. The basic unit is intended to represent two terms of general degree work offered in a liberal arts college. Work in honours, professional and graduate programs is related on a rough cost basis to this unit.

In line with government policy that the formula is subject to periodic review, OCUA recommended and the government accepted, that the formula be modified to include a feature of enrolment averaging to lessen the sensitivity of the formula to annual enrolment changes. The 1977/78 formula grants (undergraduate) are distributed in relation to the average number of BIU's in each institution during the years 1974/75, 1975/76 and 1976/77. In addition, the government accepted an OCUA proposal on funding graduate work according to the distribution of 1975/76 graduate BIU's, and to escalate the value only for inflation. OCUA also recommends to the Minister on supplementary and other special grants for institutions.

Multi-year planning has played a significant part in the development and financing of the Ontario colleges system. In 1972 the Council of Regents for the Colleges of Applied Arts and Technology announced the adoption of a multi-year planning process which called for the annual submission of college plans in a format prescribed by the Regents. Supported by simulation models for resource requirements prediction, the plans include narratives of college objectives, enrolment projections, program identification, proposals and cost projections, detailed capital and other resource requirements for a five-year period.

Until 1975 when the allocation formula was reviewed, the multi-year plans were linked to both the "asking" and the distribution processes in funding the colleges. The Ministry analyzed and evaluated each college's multi-year plan, then consolidated an overall system plan and budget request for cabinet. When the total college appropriation was approved, institutional allocations were made on the basis of a formula applied to each college's enrolment projections for the next year. A modified version of multi-year plans is still required to support the case for overall budget needs, as well as to provide the Ministry, Regents and institutions with information for accountability and monitoring purposes. However, the allocation of operating funds to the colleges is no longer based upon enrolment projections from the plans, but based instead upon a revised grants scheme summarized below.

The revised grant distribution system for the colleges was phased in, starting with the 1976-77 fiscal year. Implementation guarantees that no institution receives a grant below the funding level of the immediate preceding year. In an inflationary situation, no college receives an increase of less than 75% of the increase in the total grant. The remaining 25% of the increase is shared among those colleges who, under the sharing formula, qualify for an increase of more than 75% of the rate of increase in the total college system. The sharing is in proportion to the amounts by which their share (but for the implementation of the 75% minimum for each institution) would have exceeded 75% of the increase of the previous year's grant.

The revised grant system consists of two parts:

1) The plant and property grant is designed to meet the approximate cost of providing and maintaining the plant and property of each college. It is based on the last available audited expenditures modified to provide for increased costs and for specific additional expenditures.

2) The activity grant is based on the premise that all costs, other than plant and property, are incurred to provide education. It is therefore geared to the cost of providing education and is calculated in two components:

    a) a formula component under which funds are distributed in proportion to direct teaching salaries.
    b) a non-formula component, whereby each college may be compensated for expenditures which are not related to direct teaching salaries, e.g. equipment, intensive courses, new programs.

The Minister, in determining the adjusted components, is advised by a sub-committee of the Council of Regents, who will examine the relative merits of each college's submission for additional funds.

Regarding collective bargaining in Ontario, Carleton University Faculty Association with 600 members, The University of Ottawa with 700 members, and York University with 1000 members are certified bargaining agents, and have signed their first collective agreements with their respective boards of governors. The University of Windsor Faculty Association with 410 members and Algoma College Faculty Association with 30 members are certified and are bargaining their first collective agreement. Laurentian University Faculty Association with 250 members is not certified, but will be holding a referendum to receive a mandate from their faculty to seek voluntary recognition as the bargaining agent under the Ontario Labour Relations Act. The Faculty Association of the University of Toronto with 2250 members is not certified but is seeking voluntary recognition as the bargaining agent outside the Labour Relations Act.

There are some 6000 community college teachers in Ontario that form a separate unit of the Civil Service Association of Ontario. Representatives of the C.S.A.O. bargain with the Ontario Council of Regents who represent the colleges.

## Quebec

The universities and Collèges d'enseignement général et professionnel (CEGEPS) are administered and funded through the Ministry of Education. Major changes in financial planning are underway, and it appears that a form of program planning and budgeting will be introduced in 1977. The Ministry exerts considerable coordinative and administrative control over the college sector, but in the universities sector this control is significantly lessened because of the existance of Conseil.

Conseil, a council of universities created by law, coordinates the universities, serves as an advisory body to the Ministry, and assures the universities of a strong academic representation at the government level. Operating funds and capital expenditure allocations for universities are recommended for each institution by the Ministry's directorate for higher education, Direction générale de l'enseignement supérieure (DGES). Conseil examines the DGES proposal and makes recommendations to the Ministry. The financial plan operates on a five year basis with annual review.

College funding is currently oriented towards a formula approach which, when applied to enrolment projections agreed to by the Ministry's college directorate, forms the individual institution's grant in ten categories as follows. Examples given are for the 1976-77 budget year.

| BUDGET GROUP | 1976-77 GUIDELINES |
|---|---|
| Group I | |
| General Administration<br>Instructional Administration<br>Pedagogical Aid | a) Basic Grant $325 000<br>b) $175/full-time student in excess of 1 500 students to a maximum of 2 500<br>c) $125/full-time student in excess of 2 500<br>d) In the case of a regional college, the college is granted an additional $ 25 000 per campus |
| Group IIA | |
| Teaching Service | a) The college's budget for the remuneration of its teachers, is established on the basis of the articles written in the 1974-75 decree (Article 5.1.1 Page 2). Fringe benefits are $400/teacher |
| Group IIB | |
| Teaching Service Administration | a) $32/full-time student |
| Group III | |
| Laboratory Service for:<br>Pure Sciences<br>Humanities<br>Applied Sciences | a) the 1975-76 revised budget *excluding the supplementary rule and transferability* is augmented in the proportion equivalent to half the rectified projected percentage increase in full-time student population for 1976-77 over September 30, 1975.<br>b) Expenses incurred in a new lab, due to the approval of a new course option, form the basis for an additional grant over that of section (a) |

| BUDGET GROUP | 1976-77 GUIDELINES |
|---|---|
| Group IV | |
| Library<br>Audio-visual<br>Research & Development | a) Basic Grant $35 000 plus $65/full-time student<br>b) In the case of a regional college, the college is granted an additional $20 000/campus |
| Group V | |
| Pastoral Service<br>Leisure Activity & Sports<br>Psychological Service<br>Student Services | a) Basic Grant $45 000 plus $50/full-time student<br>b) In the case of a regional college, the college is granted an additional $45 000/campus |
| Group VI<br>Data Processing | a) Basic Grant $45 000<br>b) In the case of a college giving a data processing option the college is entitled to an additional $30/full-time student in excess of $1 000 |
| Group VII | |
| Transportation | a) The budget for this group is established after an analysis of the proposals offered by the college |

*NOTE: Documentation does not indicate Budget Group VIII.*

| BUDGET GROUP | 1976-77 GUIDELINES |
|---|---|
| Group IX | |
| Buildings & Equipment | a) The budget for the expenses of directing the services, heating, trucking, security supplies and cleaning and fixture maintenance must not exceed that of the 1975-76 budget for the same expenses.<br>b) In the case of a college that is required to maintain additional spaces during 1976-77, the college is allowed $0.75/additional square foot. It is subject however, to the following: If occupancy of the new facilities is from July 1, 1976 to June 30, 1977 the entitlement is 100%, but if it occurs after July 1, 1976 the entitlement is in proportion to the number of months of occupancy. This takes into account all expenses related to the facilities. |

| BUDGET GROUP | 1976-77 GUIDELINES |
|---|---|
|  | c) This budget for fixture maintenance is included in section (a). |
|  | d) The budget for any other expenses will be determined after analyzing the needs. Included in these expenses are those for rent and taxes. |
| **Group X**<br>Debt Service | a) The budget for this expense is established after analysis of the need, taking into account the Minister's payment of grants policy. |

In addition to funding through these budget categories for regular day instruction, continuing education in the CEGEPS is budgeted separately and funded by the government at $500 per full-time equivalent student.

Funds are "locked in" to the specific budget categories with provision for possible transfer of a maximum of 15% of the total grant received from one budget group to another group. The CEGEPS budgets are revised after enrolments are known and resubmitted to the Ministry for approval.

Regarding collective bargaining, the University of Quebec's four campuses - Montreal, Chicoutemi, Trois Rivières and Ramouski - each have faculty associations certified with a total of about 1000 members in the University. Bishops University Faculty Association with 60 members is certified and bargaining its first collective agreement. The University of Montreal Faculty Association of 1200 members has an agreement in effect and a separate agreement covers a unit of 200 medical staff supervising teaching in hospitals. The University of Sherbrooke Faculty Association, excluding the Faculty of Medicine, has 450 members, with two separate units, one for engineers and another for all other faculty. Both have their first agreement in effect. Laval University Faculty Association with 1000 members is certified and an agreement was reached in January 1977 which ended a 107 day strike.

The college faculty in Quebec are members of the Federation des Enseignement de Cègep under the Centrale des Syndicats Nationaux. The agreements in Quebec only cover instructors whereas in other parts of Canada other academic personnel such as librarians and counsellors are also included in bargaining units. The federation bargains with the Government of Quebec.

## The Maritime Provinces

Twenty-four postsecondary institutions in New Brunswick, Nova Scotia and Prince Edward Island make known their financial needs to the Maritime Provinces Higher Education Commission. The MPHEC prepares annual assessments of financial needs for the institutions and regions, and reports as an advisory body to the Council of Maritime Premiers, reporting to the Council, and through the Council, to the three provincial legislatures.

One of the broad objectives of the Commission since its establishment in 1974 has been to foster the development of multi-year planning. Thus far the planning has involved the institutions in annually providing to the Commission five-year projections of enrolment, staff and financial needs. Comparability of submissions is attempted through use of definitions in the manual for Atlantic Provinces Universities Financial Information Systems. Considerable work has been done by the Commission on enrolment studies, longer term capital needs, and a comprehensive Maritime university program profile. These efforts, along with the five-year projections from the institutions, are to form the basis for a three-year operating, capital assistance and program plan. The Commission has recommended the adoption of the three year financing scheme and expects to implement it as part of its 1977-78 financial recommendations.

In the 1970's the Association of Atlantic Universities initiated the development of a uniform financial reporting and program costing system. Currently the Commission, Statistics Canada and AAU are jointly funding the implementation of the final phase of the system.

The Commission recommends support and administers allocations through four types of grants. A basic grant component makes up about 70% of the total operating grant and is made in relation to the institutions' prior year's enrolment. A variable grant component makes up about 30% of the operating grant for most institutions and is based on the current year's enrolment. The variable portion is calculated by using the enrolment units and weights according to the schedule below. The Commission sets the dollar value according to available funds. In addition, there are special "start-up" grants for new programs and supplementary grants for debt servicing in some institutions.

## PROGRAM WEIGHTS FOR OPERATING GRANTS PURPOSES

### Full-time Undergraduate

| Program | Weight | Program | Weight |
|---|---|---|---|
| Arts | 1.5 | Engineering | 4 |
| Social Sciences | 1.5 | Forestry | 4 |
| Theology | 1.5 | Health Professions | 4 |
| Business/Commerce | 2 | Law | 4 |
| Education | 2 | Nursing | 4 |
| Library Science | 2 | Physical Education | 4 |
| Secretarial Arts | 2 | Translation and Interpretation | 4 |
| Social Work | 2 | Visual and Performing Arts | 4 |
| Computer Science | 3 | Dentistry | 12 |
| Home Economics | 3 | Medicine | 12 |
| Science | 3 | | |
| Agriculture | 4 | | |
| Architecture | 4 | | |

### Full-time Graduate

| | Weight |
|---|---|
| Masters level | 2 x Undergraduate Program Weight (Maximum Weight of 12) |
| Doctoral level | 4 x Undergraduate Program Weight (Maximum Weight of 12) |

### Part-time Undergraduate

| | Weight |
|---|---|
| Full-time equivalent* of part-time | 2 |

### Part-time Graduate

| | Weight |
|---|---|
| Full-time equivalent* of part-time | Same weights as apply to full-time graduate |

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*For part-time students, each half course represents 1/10 of full-time equivalent (FTE) and each full course represents 1/5 FTE.

Regarding collective bargaining in the Maritimes, colleges' faculties (except for Bathurst College and Prince Edward Island's colleges) are organized under their respective civil service. College Cape Breton Faculty Association with 50 members has been voluntarily recognized by its employer under the Labour Relations Act of Nova Scotia. There is an agreement in force covering salaries. The Saint Mary's faculty association has 160 members in its legally certified bargaining unit and operates under a current collective agreement. Acadia University with 200 members in the bargaining unit are negotiating their first collective agreement.

The University of Moncton Faculty Association with 200 members in the bargaining unit has been recently certified and is bargaining its first collective agreement. Bathurst College Faculty Association (once affiliated with the University of Moncton) is now placed into the Community College System of New Brunswick and is a certified bargaining unit. The bargaining agent is a local of the Canadian Union of Public Employees.

St. Thomas Faculty Association with 60 members in the bargaining unit has also been recently certified and is currently bargaining its first collective agreement. The University of New Brunswick with 293 members in its faculty association are holding a referendum regarding certification.

The University of Prince Edward Island Faculty Association has 122 members. Although it is not certified under the Labour Act, there is a special agreement to negotiate salaries and other matters. A dispute over salaries was resolved through arbitration.

## Newfoundland

Several years ago, expenditure-per-student formulas were used to assess university financial needs, but currently the Memorial University of Newfoundland submits budget estimates annually to a University Finance Committee of Cabinet, chaired by the Minister of Finance. Communication on financial matters between the Premier, Ministers of Education and Finance and the University President are direct, and allocations are usually the result of consensus among these officials.

Legislation has been recently drafted regarding the establishment of the first community college. Currently a college of trade and technology and a college of fisheries submit detailed line item budgets to the Department of Education which makes financial allocation recommendations to Cabinet.

Regarding collective bargaining, faculty members in the University are not unionized and there appears to be no strong movement towards a union. College faculty members bargain with Treasury through one of the certified unions in the Public Service.

# APPENDIX D

## GREAT BRITAIN UNIVERSITIES

The University Grants Committee (UGC) has existed in essentially its present form since 1919 in the traditional role as a buffer between the universities and the government. In 1964 the Secretary of State for Education and Science, became responsible for financing of institutions of university status, through the University Grants Committee. Up to then the UGC was the direct concern of the Treasury and was staffed by Treasury civil servants. In this appendix, the operation of the UGC is examined to determine whether practices which have evolved over many years in Great Britain and the various techniques used, along with the rationale for them and arguments for changes to them, have application to our allocation problem in Alberta. In order to concentrate on this objective we have not pursued two other aspects of higher education in Great Britain which may be of interest: the non-university sector and the open university.

In general, the financing technique is non-formula budget review which seems heavily dependent on detailed data analysis of enrolment projections, unit costs, manpower information, staffing and space. The British Committee distributes its block grant to about 45 institutions in England, Wales and Scotland. In 1975-76 the recurrent grant was £465 million to a system which registered a quarter million full-time students and employed more than 31,000 full-time teaching and research staff who were paid wholly from general university funds. The quinquennial grants are intended to encourage planning but there seems little long-range system-wide planning and no officially stated goals for the system beyond manpower targets.

## A. The University Grants Committee

The terms of reference of the University Grants Committee are as follows:

> To enquire into the financial needs of university education in Great Britain; to advise the Government as to the application of any grants made by Parliament towards meeting them; to collect, examine and make available information relating to university education throughout the United Kingdom; and to assist, in consultation with the universities and other bodies concerned, the preparation and execution of such plans for the development of the universities as may from time to time be required in order to ensure that they are fully adequate to national needs.

The Committee affirmed in their report on the 1967-72 quinquennium that no minister or official has shown the slightest inclination to reduce the independence of the Committee or of the universities. Over time the planning process has evolved and now includes exercise by the Committee of certain strategic influence. More information is collected and the government has established firm enrolment targets, not only for student numbers, but for the distribution between Arts and Science, undergraduate and graduate students. The government has never tried to influence the Committee's decision on the sums of money paid to any individual institution, nor attach conditions to the grants made by the Committee within the total specified quinquennially for recurrent and equipment grants and annually for capital grants. The freedom which the Committee has enjoyed to allocate funds is seen as a guarantee of independence for the universities.

In preparation for the quinquennium 1972-77, the Committee provided more detailed guidance to universities to assist them develop their own plans and provide the Committee with information useful in the final allocation of grants. Also, the Committee has taken every opportunity to reaffirm on the universities' behalf, the merits of their current system: The block recurrent grant and a fixed quinquennium. It is seen as fundamental to the universities' independence that the institutions be able periodically to plan for a sufficient length of time ahead and have a guaranteed unallocated income for that period, which will enable them to make their own decisions in the light of events.

In a White Paper in 1972,[1] the government outlined the scope for future university development to 1981 and gave a provisional planning figure of full-time university students in that year of 375 000. The Committee welcomed indications of a planning figure for the end of the quinquennium after the current one not only because universities need to know within reasonable limits what their size and shape may be expected to be before they start any detailed quinquennial planning but also because the timescale of planning and building construction is so long. This initiative by the government was welcomed by the universities because it is more satisfactory to work to a figure which the government has determined and for which government has undisputed responsibility.

## B. University Financing: Recurrent Grants

In 1966, universities were asked for their estimates for the period up to 1971-72. Although there was no government commitment to numbers of university students beyond the figures implied by the Robbins Report[1] (204 000 students in 1971-72), the universities were requested to relate their student numbers to the physical facilities that would be available in 1971-72, including buildings started as a result of building programs up to and including 1969-70. The physical facilities actually available by 1971-72 provided enough physical capacity for 245 000 students. This represented additional capacity at a time when, for demographic reasons, the rapid increase of potential applicants for university entrance was expected to slow down.

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[1] Education: A Framework for Expansion, Cmnd. 5174, Presented to Parliament by the Secretary of State for Education and Science by command of Her Majesty (London: Her Majesty's Stationery Office, December 1972).

Preliminary to its work in the allocation of the 1967-72 grants to universities, the Committee compiled a United Kingdom notional allocation of additional resources (grant, fee income, etc.), breaking out the central university activities, and academic departments (by various subject groups), and taking into account the distribution of additional undergraduate and graduate students. This model allocation of students and money at a national level is the framework within which each universities' grant was determined.[2] Each university was notified of its grant and told the total number of students on which it was based, including the distribution of Arts and Science, undergraduate and graduate students. Institutions were not given details on grant calculations and only indications of those financial proposals in universities' estimates that had been taken into account. The Committee sees this as a way of enhancing universities' autonomy in resource distribution so as to leave them scope to adapt to the pressures of student admission not envisaged when the student number projections were made.

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[1] Report of the Committee on Higher Education under the Chairmanship of Lord Robbins, Cmnd. 2154.

[2] University Grants Committee, University Development 1967-1972, Cmnd. 5728, Presented to Parliament by the Secretary of State for Education and Science by command of Her Majesty (London: Her Majesty's Stationery Office, September 1974).

The 1957-62 and the 1962-67 quinquennium settlements were subject to substantial revision in mid-quinquennium in respect of both grant and of student numbers but not the 1967-72 settlement. The recurrent grants were not increased in real terms after the settlement. However they were supplemented on several occasions to take into account academic salary revisions and other price movements. The Committee retained a small portion of the grant (less than 1%) for special purposes.

### C. Planning and Allocating for the 1972-77 Quinquennium

Experience with the 1967-72 grant distribution convinced the chairman to give the universities an indication of student numbers in 1976-77 which might be taken by each university as a starting point for consideration of their own quinquennial developments. Student numbers were broken out by Arts and Science and were related to the optimum current pattern of utilization of spaces in universities, taking part-time students into account. Also, there was an indication to each university of the building priorities for the three building years 1972-75.

In determining the student numbers and considering the amount and type of capital provision to be made to enable universities to reach suggested figures, the Committee took as a starting point the capacity of the buildings which would be available on completion of the building programs up to 1971-72. The universities understand that Committee guidance offered is preliminary and tentative, and universities are always free to formulate their own quinquennial proposals. The universities stayed within the overall range of student numbers (316 000 full-time students by 1976-77) but the percentage of graduate students was higher than that contained in the Committee advice. The government decision on quinquennial grants for 1972-77 dropped 10 000 graduate students from the Committee proposal and set the overall figure at 306 000 full-time students by 1976-77.

The new number of graduate students and the change in mix of students, forced the Committee to construct a new notional allocation of resources between academic disciplines and central expenditures. The universities had proposed a continuation of the existing ratio of graduate to undergraduate students in each discipline. The Committee concluded that it was necessary to make a distinction among disciplines in reducing the number of graduate students. The Committee departed from previous practices of giving only a broad indication of student numbers and instead indicated to each university the number of graduate students in each of the main subject groups on which grants had been based. The Committee believed the detail useful because of the sharp change in the growth rate of graduate students together with the need to achieve a faster than average rate of growth in certain fields. The Committee emphasized that the distribution was merely indicative.

In the course of the quinquennium the Committee considered several studies of universities' expenditures by subject group and by the various kinds of central expenditure in relation to student numbers and had concluded that, if no new departments were created, no new courses evolved and no new lines of research developed, the cost of every additional student (the marginal cost) might be less than the average per student cost. This gave a base for assessing a minimum amount of extra grant for each university as a starting point for the calculation of new grants. The settlement, however, allowed for some developments in addition to those arising from only a marginal cost approach. The Committee, with the assistance of subject sub-committees, considered the distribution of this development money between subjects, and then, added into each university's additional resources for development purposes, taking account what was proposed in estimates and the fact that the case for diversification was stronger in some universities than others. Excluding a small portion of the grants kept as a reserve, the total amount available represented a reduction in resources per student by 1976-77 to 98% of the 1971-72 level. The combined effect of providing for additional students at marginal cost and distributing development money on a considered judgment was that resources per student in Medicine, Mathematics and Social Sciences, were expected to increase a little and those for biological and physical sciences to diminish.

The procedure for assessing each university's grant for 1976-77 involved, in the first place, a calculation of the appropriate extra resources each university should have in addition to its 1971-72 level of grant. The result of this calculation would have perpetuated previous quinquennial inequities. The first provisional assessments of grants was tested against other calculations based on the expected division of the total number of students between the universities. This is a zero-base allocation. Having reached a decision about the grant for 1976-77, grants for the remaining years were arrived at by interpolation. Thus, the Committee grant determination appears to be largely student-number and unit-cost oriented, although there was a substantial element of judgment involved, both in regard to the distribution of development money not associated with student numbers and the extent that individual institutional grants differ from what might be an "average unit cost" distribution.

a. Allocation of Recurrent Grants

In summary, the procedure for assessment of recurrent grants[1] tends to fall into four main steps:

1) The submission of the university's estimates and development proposals
2) The analysis and assessment of estimates and proposals by the Committee and their subject sub-committees
3) The Committee's reports to the government
4) The allocation to universities by the Committee of the global amount made available by the government.

The quinquennial system has been criticized over the years for having the following weaknesses: (1) while the cost of increases in academic salary scales is met by supplementation, there is no automatic adjustment for wage and price increases; (2) there is no adjustment to meet changing needs or new developments in the university; (3) the occasion of the quinquennial review may be inopportune either economically or politically; (4) the certainty provided by the system is only adequate at the beginning of the quinquennium and vanishes at the end. There has been discussion of a rolling system including a rolling quinquennium but the Committee concluded that it does not improve on the quinquennium approach. A rolling system has obvious advantages to those institutions restricted by a system of annual estimates. For these institutions figures for subsequent years, even on a provisional basis and with no firm commitment give a basis for longer term planning. The Committee is not concerned with the "jerkiness" attributed to the quinquennial system. That is the considerable advance made during the second, third and fourth years of the quinquennium with consolidation characterising the first and fifth years. Also, the Committee has considered formulas to assist in grant allocation but has rejected the idea on the basis that the government would not be willing to accept an open-ended commitment on student numbers and that the formula would require measurement of the true or proper costs of particular institutional activities. The Committee finds it difficult to see how the adoption of the cost formula would prevent or even absolve the government from considering whether the country can afford the totals indicated by formula assessment nor how it would absolve the Committee from its responsibility of reviewing the formula from time to time.

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[1] University Grants Commission, University Development 1962-67, Cmnd. 3820, Presented to Parliament by the Secretary of State for Education and Science by command of Her Majesty (London: Her Majesty's Stationery Office, November 1968) Chapter VI, p. 128.

### D. New Procedure to Meet Recurrent Cost Inflation

The Committee was concerned during the 1967-72 quinquennium with the difficulty of coping with the increasing rate of inflation. It was agreed with the government that new arrangements would come into force with the 1972-77 quinquennium. The essence of these arrangements was:

1) that the grant for the quinquennium was related to a price level assessed as appropriate to the middle of the academic year 1972-73

2) that the movement of the index for one year would be taken as indicative of the movement for the next, so that decisions could be taken well before the next relevant year, and

3) that when the index was received the government, unless there were exceptional difficulties, would automatically give grants for the rest of the quinquennium representing 50% of that needed to fully compensate for inflation and give careful consideration to a claim from the Committee for full compensation.

### E. Academic Salaries - Collective Bargaining

There are two stages of discussion--the first between the universities and the Association of University Teachers (AUT), and the second between those bodies on the one hand and the government on the other. The Committee is associated with both sets of discussions. To facilitate representation, the Committee of Vice-Chancellors and Principals arranged for the setting up of a University Authorities Panel. The Panel and AUT appoint the independent chairman for the first stage of the machinery (known as Committee 'A') who also leads the discussion with the government on behalf of the university interest at the second stage (known as Committee 'B'). The complicated nature of the negotiating machinery is a reflection of the facts that universities are independent institutions joined together in a national system whose staff expect to have conditions of employment negotiated nationally. Further, universities cannot negotiate salary increases independently and the government, although the ultimate provider of university finance, is not in direct relationship with the universities. Thus, through the goodwill of all parties, negotiations have proceeded with no greater difficulty than might be expected in any salary or pay negotiation in periods when all negotiating procedures are subject to strain.

## F. Academic Staffing

The Committee has published staff-student ratios but there is no UGC standard for the system or by subject area to which universities are expected to conform. This simple ratio is said by the Committee to be adequate for describing changes in the system as a whole but is defective as a measure for inter-university comparison and especially for comparisons between universities and other institutions of higher education. Comparison is said to require two further considerations: The extent of part-time work and the "mix" of the subjects involved. Both factors may vary greatly from institution to institution. Thus any comparison of the student-staff ratio of a particular university with the national figure, has to take into account the differences in the mix of subjects and their relative weight in each case. The ratio for a particular subject group in any one university is thought to be comparable with the national average for the group. Where there are differences from the national figure, the scale of activities as measured by the size of departments may be relevant.

## G. Committee 'Guidance' to Universities

In the Memorandum of General Guidance[1] provided to the universities in respect of the allocation of the Quinquennial Grant 1972-77, the Committee said they would endeavour to meet the needs of the country as a whole, while taking into account any requirements laid down by the government of the day. The Committee believes that each university should manage its affairs with the minimum of detailed directions and that the combination of block Committee grants and "guidance" is the best means so far evolved to meet these objectives. Hence, the Committee has kept to a minimum earmarked grants which can be spent only on specific purposes. The memo explains the criteria that were applied to the development of the grant and gave a reasonable amount of statistical information of system-wide interest. The total amounts of grants to each university in Great Britain are shown for each of the five years in the quinquennium 1972-77 broken down only by recurrent and equipment grants. The reserve is about one percent of the total grant. The number of students and student mix are discussed and shown in historical perspective. In the memo discussion of departmental expenditures, the following interesting observation was made. In estimating elements in the block grant needed for departmental expenditure, the Committee used different weights for graduate and for undergraduate students. In the past, these graduate weightings have been Arts 2, Science 3. Analysis of the actual expenditure of university departments in 1971-72 and the Report of an Inquiry into the Use of Academic Staff Time, suggest that these weights are too high. For the 1972-77 quinquennium, the Committee used weights which vary between between one and two.

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[1] Appendix 6, Allocation of Quinquennial Grant 1972-77 Memorandum of General Guidance, Cmnd. 5728, Presented to Parliament by the Secretary of State for Education and Science by command of Her Majesty (London: Her Majesty's Stationery Office, September 1974).

The universities were informed in July 1967, the number of professors, senior lecturers and readers should not exceed 35% of the total academic staff paid from general university funds. In March 1972, the Committee informed universities that the maximum permitted proportion of senior staff was increased to 40%. No additional funds were provided for this change in the distribution of recurrent grants for 1972-77 and no special account was taken of any prospective increase in the proportion of senior staff. This is an interesting regulation given the UGC's firmly stated position as protector of institutional autonomy.

## H. Annual Survey for 1974-75

The most recent information available on the current quinquennium is UGC's Annual Survey[1] for the academic year 1974-75. The Committee reported that the year was one of severe strain for both the universities and the Committee. Far from being insulated from the national economic difficulties, the university system is exceptionally sensitive to them, not only in the financial sense, but in areas such as the flow of applications, the prospects for graduates and the market for research. The Committee felt that the universities are meeting these difficulties with determination and integrity. Faced with the need to carry on their work and maintain academic standards within a troubled financial system, universities have reduced real costs by approximately 8% over two years of severe inflation. This success was attributed to the participative nature of the decision-making process which can flourish only in the autonomous and consequently flexible system that currently exists. Despite a continued campaign of economy which led to the freezing of some 500 academic vacancies, serious reduction in services and the potential for scholarship and research, the prospect for the academic year 1974-75 was one of insolvency for some of the institutions and great financial uncertainty for the system as a whole. The Annual Survey said the occurrence of vacancies is haphazard and unrelated to changing demand for courses of particular kinds, or to relative teaching loads of staff. There are, it said, narrow limits within which university staff can be redeployed. The Committee noted that staff distributions are increasingly at variance with student distributions. Also, the lack of new appointments has the result that the current output of graduates is lost to academic life.

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[1] University Grants Committee, Annual Survey--Academic Year 1974-75, Cmnd. 6435, Presented to Parliament by the Secretary of State for Education and Science by command of Her Majesty (London: Her Majesty's Stationery Office, March 1976).

A damaging consequence of the events which loomed in 1973-74 and dominated 1974-75 was the loss of an adequate planning horizon for the universities, both individually and as a system. The Committee regards the restoration of dependable finance for a number of years ahead as second in importance only to the preservation of the financial integrity of the university system.

In the Annual Survey, the UGC emphasized again the importance of the block grants distributed by the UGC and the five-year planning horizon offered by the quinquennium. One of the purposes of the block grant is to ensure that the universities have full discretion in the balance between research and teaching activities. As university resources are restricted, there is a distortion imposed on the optimum relationship between these two activities. However, the Committee feels that it is of the utmost importance that the final decisions in this regard be made by the universities and they warn that if distortions are allowed to exist for a long time, it may not be possible for the universities to regain the appropriate balance.

To carry out their duties, the UGC not only maintains close contact with the universities themselves, but has developed (with pride) comprehensive arrangements for assembling data on which UGC decisions are based. Also, the Committee annually publishes a volume of statistics on the first employment of university graduates. This is consistent with UGC terms of reference to ensure that the development plans of the universities "are fully adequate to national needs". The Committee's work rests on the principle that the universities are autonomous and responsible for their own decisions and their own management. The UGC wants to foster the differing styles and traditions of the institutions and notes that global figures often miss much of the diversity of the universities. The Committee considers it right, and the universities seem to agree, that UGC should exercise influence in the institutions and particularly on the shape of the growth of the system as a whole, so that the system responds to the needs of the nation. This does not mean central planning, but much of the influence is exerted through the distribution of capital grants. Nothing is meant to imply that universities are subordinate to the University Grants Committee.

## I. Some Comments from Another Perspective

The University Grants Committee is not, of course, without its critics. Jack Embling notes that while the Organization for Economic Cooperation and Development has been stressing educational planning for nearly two decades and it has become increasingly a practice in Europe, "only Britain seems to lag behind."[1] Embling goes on to note that:

> Certainly planning is badly needed in Britain and not the least for the whole field of postsecondary education. The universities, despite the shortcomings of both, have the UGC and the quinquennial system of financing and some, if inadequate, information about the basis on which financial allocations and capital investment programs are made.[2]

He does not believe that the United Kingdom has engaged in the sort of comprehensive and systematic planning processes which are characteristic of the Carnegie Commission's view of the planning function. That is the:

> ...basic impetus for coordination of educational units was the desire to avoid multiple budget negotiations between several separate institutions and the state legislature and to avoid competition that might be harmful to the system as a whole and to the units within it. Planning, on the other hand, grew out of broader and more long range concerns. In its broadest sense, statewide planning must first be concerned with sets of goals; the economic and social goals of the state, the goals of the educational system and its institutions, the goals of the individuals within the system, and the interaction among these sets of goals. Then planning must be addressed to the optimum allocation of resources to accomplish the desired ends.[3]

Perhaps the most negative of Embling's remarks are those in respect of the relationship between the universities and the UGC.

> It is all very gentlemanly, all very subtle and not a little unreal. It has extended noticeably into more and more areas of university life but it is not unreasonable to argue, nor difficult to accept, that as the university system has increased in size and complexity,

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[1] Jack Embling, A Fresh Look at Higher Education--European Implications of the Carnegie Commission Reports--Studies on Education, Vol. 5 (Amsterdam: Elsevier Scientific Publishing Company, 1974), p. 81.

[2] Ibid, p. 82.

[3] Carnegie Commission on Higher Education, The Capital and the Campus: State Responsibility for Postsecondary Education (New York: McGraw-Hill, 1971), p. 31.

new administrative tools are needed, even by the UGC. What is much more crucial as we noted above is the relationship between the Committee and the government, how far the role of the UGC has in fact been changed into that of a communication channel and operational agent. It is now feared that the much vaunted autonomy of British universities, envied in so many other countries, is increasingly a façade, that the universities are powerless to resist if the government decides to give another turn of the screw, as they did in December 1972. There is a growing feeling that the grace and favour basis of university independence might as well be openly recognized.[1]

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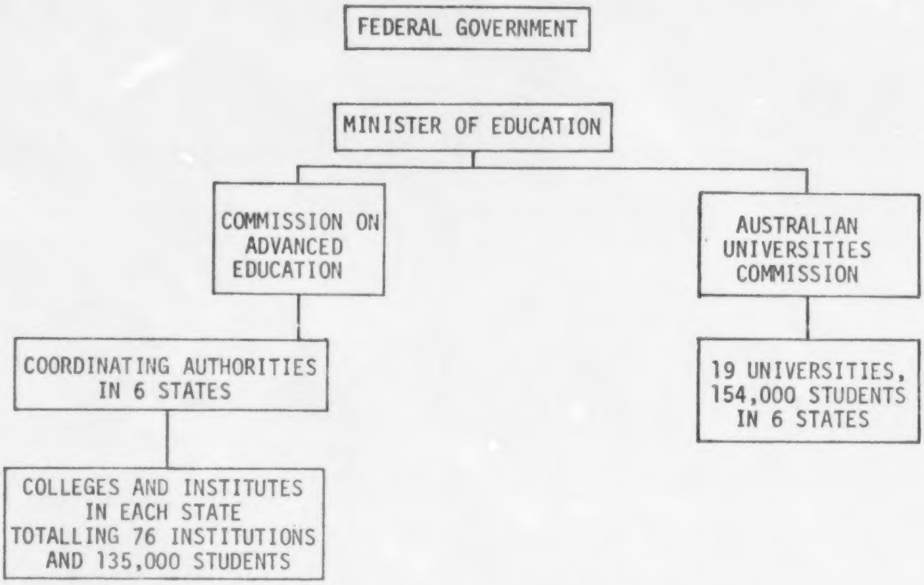
[1] Op.cit., Embling, pp. 91-92.

# APPENDIX E

## FINANCIAL PLANNING IN POSTSECONDARY EDUCATION IN AUSTRALIA

Two commissions, the Australian Universities Commission and the Commission on Advanced Education, provide the funding link between the Federal Government and the universities and colleges in Australia. The following chart represents organization for institutions giving at least two year diploma programs.

ORGANIZATION OF AUSTRALIAN POSTSECONDARY EDUCATION[1]


FEDERAL GOVERNMENT
MINISTER OF EDUCATION
COMMISSION ON ADVANCED EDUCATION
AUSTRALIAN UNIVERSITIES COMMISSION
COORDINATING AUTHORITIES IN 6 STATES
19 UNIVERSITIES, 154,000 STUDENTS IN 6 STATES
COLLEGES AND INSTITUTES IN EACH STATE TOTALLING 76 INSTITUTIONS AND 135,000 STUDENTS

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[1] Source of Information for Chart: Commission on Advanced Education, 1977-79 Report, Recommendations for 1977 (Canberra: Australian Government Publishing Service, 1976); Universities Commission, Report for the 1977-79 Triennium, July 1976 (Canberra: Australian Government Publishing Service, 1976).

The Universities Commission, established in 1959, works, for the most part, directly with the universities, but there are consultations with the Advanced Education Commission, and with state agencies and boards concerned with universities. The Commission on Advanced Education, established in 1971, works primarily with state coordinating authorities which make recommendations on behalf of the colleges. A third commission is responsible for Technical and Further Education which encompasses trade training, middle level technician courses, and general community interest courses.

## A. Triennium Funding

Since 1974, postsecondary education in Australia has been totally funded by the Federal Government, for both recurrent and capital needs. Up to 1975 the universities and colleges were funded according to a "fixed triennium". The government, after receiving recommendations from the commissions, would allocate funds for a three-year period, thereby allowing institutions to plan within the security of legislative provision for their programs. After a departure from triennium financing for the 1976 calendar year, a system of "triennium programming" or "rolling triennium" was introduced. It now appears that even this modified form of triennial financing will not be used for the 1977 calendar year. The basic financing technique used is still a non-formula approach, based on review of budget proposals and extensive supplementary data. The remainder of this summary will trace a few features which may be of interest in Alberta financial planning, particularly the recent changes in government policy regarding the allocation procedure, and the characteristics of the budget review process which supports the request and allocation of funds.

Prior to 1976 the Australian universities had been financed for 15 years, and the colleges for nine years, according to a "fixed triennium" system. The commissions made their own assessments of institutional needs, and advised the Minister of Education on the amount of financial assistance each institution should receive.

In the college system the "asking" process typically consisted of each state coordinating authority submitting to the Advanced Education Commission the projections of enrolment and the requests for recurrent and capital funds. The colleges themselves did not know the Commission's criteria for the level of funding requested for each college. The allocation process followed legislative decisions on funding for the triennium, and each college then knew the amount of capital and recurrent funds it would receive.

Capital funds are tied to specific projects. In some cases, state coordinating authorities have staffing ratios which must be followed, but for the most part the allocation of recurrent funds among academic salaries, support staff salaries and other operating expenses are left to colleges to decide.

In the universities system, the "asking" process has been part of the Australian Universities Commission triennium report. Like the recommendations for the colleges, the proposed university funding is shown, by university, for categories including general recurrent, equipment, special research, teaching hospitals and residences. Of interest is the explicit provision of research funds to support academic staff who have promising research projects, and who are not supported by outside funds or who have responsibilities in training research students. Such special research funds are distributed as stipends for research scholars enrolled for higher degrees, salaries of staff devoted wholly to research (usually technical staff), equipment, library materials of a research character, consumables and travel. Also provided as part of the recurrent grant is an amount to cover the administrative and tutorial costs of residence operations.

The starting point for the preparation of grant requests for universities are triennial submissions from the institutions. These submissions are prepared on the basis of a Commission questionnaire, which requests extensive information. Universities are asked to provide general policy statements indicating developments since the previous submission and proposals for the next triennium. Support for these statements includes detailed data on actual and projected student enrolment, staff, library seating and holdings, expenditures by category, as well as space uitization data and building development plans. Definitions of the data correspond to those set down for an annual system-wide statistics collection procedure.

Until the recent break in the triennial procedure, the next step of the "asking" process for both the universities and colleges had been commission visitations to the institutions and other state agencies. Such visits of two or three days duration at each institution were arranged to discuss details of the institutional submissions and to allow for inspection of developments on the campuses. Representatives of national student and staff associations and unions were similarly consulted by the commissions prior to submissions of triennium recommendations to the government.

## B. Supplementary Grants

After the government decided on triennial support to postsecondary institutions, the amounts of funds to be allocated to each institution were effectively fixed for a three-year period. Problems of inflation within the triennia led in the early 1970's to a system of supplementary adjustment grants which became an automatic feature of institutional financing.

Since 1964, supplementary grants had been provided to the institutions to reimburse them for the cost of academic salaries approved by governments as a result of special enquiries established by the Australian Government. In 1974 parliament approved of an academic salaries tribunal to provide permanent machinery for future reviews and establishment of academic salaries.

With respect to general salaries and wages, the Australian Government agreed that adjustments for increases in these costs should be based on a national index which reflected salaries of positions in the public service.

The Universities Commission prepared and used an index for non-salary costs to cover such items as consumables, books and periodicals, stationery, postal and telephone services, electricity rates and travelling expenses. Supplementary grants were also provided through an indexing method for the escalation of building and equipment costs during a triennium.

## C. Changes in Triennium Funding

The Australian Federal Government departed from the fixed triennium system of funding for the 1976 calendar year. The Minister of Education advised the Commissions of his decision to allocate, within a total sum approved by Cabinet, specific sums of recurrent and capital funds for each postsecondary sector. This event marked a suspension of the traditional "asking" process. Within the financial ceilings which were set, the commissions were requested to provide advice on the distribution of the funds to the institutions. The commissions were requested to conduct their review and put forward their recommendations in relation to criteria laid down by the government as follows:

"(a) Recurrent expenditures in 1976 is to be at a level which maintains existing standards;

"(b) The present proportion of the relevant age group going on to tertiary education is to be maintained;

"(c) New initiatives are to be deferred;

"(d) Expenditure on capital projects already commenced is to be continued;

"(e) New capital projects are to be limited to those demonstrably essential."[1]

The two commission reports which presented funding recommendations for 1976 to the Minister also contained statements of concern regarding the interruption of the fixed triennium. The Universities Commission, while appreciating the financial and economic difficulties facing the government, was deeply concerned about the interruption of 15 years of triennium funding which they believed to be crucial to orderly and efficient development. The Commission on Advanced Education had similar concerns, as well as apprehensions about the erosion of institutional autonomy that could result from lack of government commitments to longer term funding.

## D. The Shift to Government Guidelines

The Minister indicated that triennium funding would be resumed for 1977-79. After a change in government in late 1975, the new Minister announced the reinstatement of the triennia system in terms of "triennial programming" which would be on a "rolling" basis. This modification meant that as each year is completed, plans for the remaining years of the triennium are reviewed and updated, and initial proposals made for a new third year. Both commissions and the institutions see the rolling triennium as a disguised form of annual financing, because advanced education authorities are now advised of funds on an annual basis. Regarding the second and third years of the 1977-79 triennium, the commissions have been advised to plan on a minimum growth of two percent in real terms on the level of expenditure in the preceding year. The government also decided to replace the cost supplementation arrangements with less automatic provisions for unavoidable increases in cost.

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[1] Universities Commission, Recommendations for 1976 (Canberra: Australian Government Publishing Service, October 1975).

Reaction from the two commissions includes concern about the need to maintain the real growth of two percent per annum through some appropriate supplementary grant arrangement that will cover unavoidable cost increases. The Universities Commission further argues that because the 1976 indices were prepared by the Commission on the basis of objective data over which the universities have no control, and because the supplements based upon these indices were automatic, the universities have had great incentives to keep costs down in terms of prices they pay for goods and services.

Recently the government announced that 1977 would be treated outside the new triennium scheme and there is some doubt as to whether triennia will be reinstated.

## E. Student Tuition

In 1973 the Minister of Education announced the abolition of tuition fees at all postsecondary institutions and technical colleges. The abolition was made effective January 1, 1974 and covered all students taking subjects which were constituent parts of programs leading to degrees or diplomas. By 1976, the government announced its intention to reintroduce tuition fees effective 1977, for students taking second and higher degrees, apart from recognized combined programs, and first degrees plus postgraduate professional diplomas. Payment of tuition fees by all foreign students is also being considered.

## F. System-Wide Planning

Commission documents indicate the lack of system-wide planning and rationalization of postsecondary resources. There do not appear to be formalized planning processes which relate to national or state goals for postsecondary education The Universities and Advanced Education Commissions have outlined some general distinctions in role definition for the universities and colleges but the responsibility for planning has remained primarily with the institutions, with some coordinating efforts undertaken by state agencies. Recently there have been more state enquiries and reports on efficient use of resources. The general tenor of the reports suggests the closing or amalgamation of smaller colleges and closer control over the activities of colleges and universities. There is also a federal inquiry to be undertaken which will encompass the broad area of education and training - an inquiry partly prompted by the ever-expanding costs of postsecondary education but even more by political concern about heavy unemployment in the 17 - 25 age group. It also seems likely that in the near future there will be one federal commission for all postsecondary education and a parallel single coordinating body in each state which will encompass both universities and colleges.

# APPENDIX F

# ENROLMENT UNIT WEIGHTINGS COMMITTEE

## REVIEW OF ALTERNATIVES

Early in 1972 a working committee of representatives of The University of Alberta, The University of Calgary and The University of Lethbridge and the Alberta Universities Commission undertook a review of the system of enrolment unit weightings used in the distribution of formula operating grants among the universities. During the period in which the Universities Commission was responsible for the allocation and distribution of annual provincial operating grants to universities, 1967-68 through 1972-73, the approach taken involved the use of an enrolment-based allocation formula.

The enrolment unit weighting system adopted by the Universities Commission in 1967-68 was essentially that used in Ontario. The enrolment weights supporting the formula were originally derived from a study of the relative costs of programs at the University of Toronto. In areas where inconsistencies with experience were apparent, the Ontario weights were amended by the Commission so as to provide approximate consistency with costs in Alberta. The methodology was used in 1967-68 and succeeding years, however, it became apparent that differences existed between actual relative costs and enrolment unit weights.

The committee was asked to review the enrolment unit system, its use, and to recommend appropriate revisions. It was the feeling of some that the enrolment unit allocation formula could work well only if enrolment unit weights were close to student academic program costs by level. If this criterion were satisfied, the cost study[1] results would dictate a complex system of weights. Furthermore, there appeared to be substantial year-to-year variation at this level of detail, which made the problem of weight selection even more difficult.

To assist the committee in examining alternative enrolment unit weighting systems, two technical papers were prepared by Universities Commission staff.[2] These papers evaluated allocation formulas with a relatively small number of enrolment categories, thus requiring fewer weights, with the weights representing general rather than specific relative cost relationships. The primary evaluation criterion used was the ability of an allocation formula to approximate the actual grant distributions for the years 1969-70 through 1972-73.

Although the committee did not arrive at final recommendations concerning revision of the enrolment unit weighting system, it did reach consensus on a number of guidelines concerning the derivation and application of a revised weighting set. The following were reported by the chairman of the committee in its last progress report:

> "1. The weights used should only have an approximate relationship to the relative costs observed in the cost studies. For several reasons, which are set out below, it was felt it would be impractical to adopt weights which are very close to the relative costs.
>
> > "(a) All any cost study can do is show what the relative costs were in any one year not what they should have been. Due to large shifts in enrolment, for example, the actual unit costs in any one year might not be very representative in any normative sense. Therefore, the most realistic approach may be to use only approximate relationships to cost in establishing a weighting scheme for the whole system.

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[1] Bernard S. Sheehan, Mervin G. Michaels and Barbara Serediak, "The University of Calgary Cost Study 1972-73", Report No. 103, Office of Institutional Research, (Calgary, Alberta, July 1974); D. Wener, "The University of Alberta Cost Study 1973-74", The Office of Institutional Research and Planning (Edmonton, Alberta, March 1975).

[2] See Financial Plan Project Supplementary Reference Documents File, Section 18.

"(b) Since the relative costs for a program usually change from one year to the next, it would require an annual revision of the weighting system if the weights were to be closely related to relative costs. This would create real problems in operating financing, particularly when a move is underway to go to longer run financing.

"(c) The relative costs for "similar" types and levels of programs at the two universities were, in most cases, different. Tying the weights closely to relative costs would likely result in a different weighting scheme having to be used for "similar" programs at each university. It was the Committee's feeling that the philosophy, currently being used, of the same weights for "similar" types and levels of programs at each institution should be continued.

"(d) Very few program levels have the same relative costs. Choosing weights which closely approximate relative costs would thus necessitate a large number of weighting categories, significantly more than the number now being used. A large number of categories was felt to be undesirable (see point 2 below).

"2. The Committee realizes that it is attempting to develop a weighting system which can be used for the distribution of funds among universities, rather than the internal allocation of funds within a university. It is the Committee's hope that the weights adopted will not be interpreted in any program costing sense thereby ensuring each university will have as much flexibility as possible in the internal allocation of funds.

"The present system weights students by type and level of program. To reduce the complexity of the weighting system, to allow the universities as much flexibility as possible in their internal allocation of funds and to reduce the problems which have been encountered in the past when assigning weights to new programs (e.g., compulsory four year Arts and Science programs), it was the Committee's consensus that, wherever possible, the weights should be by level of program only. Thus, all students at the same level, no matter what program they are in, would receive the same weight.

"The following two possible exceptions to the above system were noted:

"(a) It was accepted that Medicine and Dentistry, because of their high costs, should be shown as separate categories. Mr. Snowden's analyses [alternative systems reviewed] treated both undergraduates and graduates in these faculties as separate categories. Although the Committee agreed that the undergraduates should be a separate category, it was felt that the graduate students in these faculties could be included, for weighting purposes, with the graduates in other faculties.

"(b) Mr. Snowden, in his second paper [on alternative systems] separated out a "professional" category which included those undergraduate enrolments in faculties and schools (other than Medicine and Dentistry) for which at least two years undergraduate participation in some other faculty was a prerequisite. At the moment, this category would include only Law and Library Science. The Committee questioned whether a separate category was necessary and suggested, instead, that students in the "professional" category be included, for weighting purposes, in the upper undergraduate weighting category.

"As a further simplification, it was decided to combine certain undergraduate categories rather than attempt to have different weights for each year. The five weighting categories thus proposed by the Committee are:

"I. UNDERGRADUATE ENROLMENTS

- (i) Lower (years 1 and 2)
- (ii) Upper (years 3, 4 other and "professional")
- (iii) All undergraduate Medicine (including residents) and Dentistry

"II. GRADUATE ENROLMENTS

- (i) Masters (including, as at present, first year Doctoral)
- (ii) Doctoral

"3. Concerning the conversion of part-time students to full-time equivalents, a number of alternatives were presented in Mr. Snowden's second paper. The cost studies do not show costs for the various categories of part-time enrolment. Some of the members of the Committee felt the weights used for spring session, summer session and possibly even evening credit should be less than those used for part-time winter day students. It did appear, however, that the majority of the Committee would favor the use of the present conversion system for any new system, i.e., all part-time enrolments would be weighted equally, as follows:

"Undergraduates - 1/4 of the full-time weight

"Graduates - 1/3 of the full-time weight

APPENDIX F

## TABLE 1

## ACTUAL AND SIMULATED OPERATING GRANT ALLOCATIONS AND DISTRIBUTIONS 1967-68 to 1972-73

| | 1967-68 | 1968-69 | 1969-70 | 1970-71 | 1971-72 | 1972-73 |
|---|---|---|---|---|---|---|
| ENROLMENT UNITS UNDER ALTERNATIVE SYSTEM | | | | | | |
| The University of Alberta | 23 773 | 27 486 | 31 823 | 33 718 | 33 742 | 33 293 |
| The University of Calgary | 8 140 | 11 003 | 13 415 | 15 543 | 15 778 | 15 551 |
| The University of Lethbridge | 736 | 1 336 | 1 726 | 2 004 | 1 823 | 1 687 |
| TOTAL | 32 649 | 39 825 | 46 964 | 51 265 | 51 343 | 50 531 |
| | ($'000) | | | | | |
| ACTUAL TOTAL GRANT ALLOCATION AND DISTRIBUTION | | | | | | |
| The University of Alberta[a] | 30 381 | 37 338 | 43 533 | 50 136 | 55 518 | 57 178 |
| The University of Calgary | 11 204 | 15 885 | 19 598 | 23 897 | 28 734 | 29 006 |
| The University of Lethbridge | 1 434 | 2 674 | 3 208 | 3 749 | 4 816 | 4 705 |
| TOTAL | 43 019 | 55 897 | 66 339 | 77 782 | 89 068 | 90 889 |
| | ($'000) | | | | | |
| TOTAL GRANT ALLOCATION AND DISTRIBUTION UNDER ALTERNATIVE SYSTEM | | | | | | |
| The University of Alberta | 30 655 | 37 550 | 43 753 | 49 810 | 56 322 | 57 000 |
| The University of Calgary | 10 975 | 15 739 | 19 404 | 24 107 | 28 023 | 29 278 |
| The University of Lethbridge | 1 389 | 2 608 | 3 182 | 3 865 | 4 723 | 4 611 |
| TOTAL | 43 019 | 55 897 | 66 339 | 77 782 | 89 068 | 90 889 |
| PERCENTAGE DEVIATIONS | | | | | | |
| The University of Alberta | +0.90 | +0.43 | +0.51 | -0.65 | +1.45 | -0.31 |
| The University of Calgary | -2.04 | -0.92 | -0.99 | +0.88 | -2.47 | +0.94 |
| The University of Lethbridge | -3.14 | -2.47 | -0.81 | +3.09 | -1.93 | -2.00 |

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[a] Includes payments to colleges.

> "4. The question of economy of scale considerations for the smaller universities was raised in a paper presented to the Committee by Dr. Holmes (see Appendix B). The general principle of applying a scale factor to the enrolment units of smaller universities was accepted by the Committee. The impact of such a move on a University like Lethbridge would be to remove the need for a non-formula emergent grant since sufficient formula grant funds would be supplied by the application of a scale factor to the University's enrolment units. The small university (as well as the large university) may require some additional support (which might be called a supplementary, transitional, above-formula or non-formula grant) in those years when adjustments had to be made due to significantly declining enrolments."[1]

In the course of its review, the Committee examined eight alternative weighting systems at a first level of review and nine more at a subsequent level. Specific detail regarding these alternatives, the evaluation methodology and the results obtained can be found in the two papers referenced previously.

It was generally concluded that, should a simplified weighting system (having a smaller number of categories and weights with weights reflecting general or approximate, rather than specific or exact relative costs relationships) be adopted, the selection of weights for the five categories identified in Guideline 2 above would depend to some extent upon the nature and phasing of implementation. The following "feasible ranges" for weights were identified:

| | | |
|---|---|---|
| UNDERGRADUATE | - Lower | 1.0 |
| | - Upper | 1.3 - 1.5 |
| | - Medicine & Dentistry | 4.0 - 5.0 |
| GRADUATE | - Masters | 3.5 - 4.0 |
| | - Doctoral | 4.0 - 4.5 |

Weights of 1.0, 1.4, 4.5, 3.75 and 4.25 are used for the above categories and the behaviour of this system is illustrated in Table 1.

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[1] See Financial Plan Project Supplementary Reference Documents File, Section 18.

# APPENDIX G

## UNIVERSITIES OPERATING GRANT ALLOCATION FORMULAS
## 1967-68 to 1975-76

### 1967-68 to 1972-73

Over the period 1967-68 to 1972-73 the general model used by the Alberta Universities Commission to allocate and distribute operating grants among the universities, may be described as follows:

$$G_1 = FC_1 + \frac{U_1}{U_1 + U_2 + \ldots + U_n}\left[G - (FC_1 + FC_2 + \ldots + FC_n)\right]$$

$$G_2 = FC_2 + \frac{U_2}{U_1 + U_2 + \ldots + U_n}\left[G - (FC_1 + FC_2 + \ldots + FC_n)\right]$$

$$\vdots$$

$$\vdots$$

$$G_n = FC_n + \frac{U_n}{U_1 + U_2 + \ldots + U_n}\left[G - (FC_1 + FC_2 + \ldots + FC_n)\right]$$

Where: $G_1, G_2, \ldots, G_n$ are the individual Commission allocations to each university and G is the total Government grant. Subscripts identify institutions.

$FC_1, FC_2, \ldots, FC_n$ are the "First Call" Grants to each of the universities.

$U_1, U_2, \ldots, U_n$ are the enrolment units generated at each university.

The specific formulations used in each year are as follows:

### 1967-68

$$G_A = FC_A + \frac{U_A}{U_A + U_C + BM_L U_L}\left[G - (FC_A + FC_C)\right]$$

$$G_C = FC_C + \frac{U_C}{U_A + U_C + BM_L U_L}\left[G - (FC_A + FC_C)\right]$$

$$G_L = \frac{BM_L\ U_L}{U_A + U_C + BM_L U_L}\left[G - (FC_A + FC_C)\right]$$

Where: $BM_L$ is the "bonus multiplier" applied to enrolment units generated at The University of Lethbridge.

### 1968-69

$$G_L = \frac{U_L BM_L}{U_L BM_L + U_C + U_A}\ G$$

$$G_C = FC_C + \frac{U_C}{U_C + U_A}\left[G - G_L - FC_C - FC_A\right]$$

$$G_A = FC_A + \frac{U_A}{U_A + U_A}\left[G - G_L - FC_C - FC_A\right]$$

1969-70

$$G_L = \frac{U_L BM_L}{U_L BM_L + U_C + U_A} [G - TG_T] + TG_L$$

$$G_C = FC_C + \frac{U_C BM_C}{U_C BM_C + U_A} [G - TG_T - (G_L - TG_L) - FC_C - FC_A] + TG_C$$

$$G_A = FC_A + \frac{U_A}{U_C BM_C + U_A} [G - TG_T - (G_L - TG_L) - FC_C - FC_A] + TG_A$$

$$TG_L = FC_L + \frac{U_L BM_L}{U_L BM_L + U_C + U_A} [TG_T - FC_L]$$

$$TG_C = \frac{U_C BM_C}{U_C BM_C + U_A} [TG_T - TG_L]$$

$$TG_A = \frac{U_A}{U_C BM_C + U_A} [TG_T - TG_L]$$

Where: $BM_C$ is the "bonus multiplier" applied to enrolment units generated at The University of Calgary. $TG_L$, $TG_C$ and $TG_A$ are individual Commission allocations of Transitional Grants to each university and $TG_T$ is the total Transitional Grant.

1970-71

$$G_L = \frac{U_L BM_L}{U_L BM_L + U_C + U_A} [G - SG_T - WB] + SG_L$$

$$G_C = FC_C + \frac{U_C BM_C}{U_C BM_C + U_A} [G - SG_T - WB - CSJ - SS/SJ - (G_L - SG_L) - FC_C - FC_A] + SG_C$$

$$G_A = FC_A + WB + CSJ + SS/SJ + \frac{U_A}{U_C BM_C + U_A} [G - SGT - WB - CSJ - SS/SJ - (G_L - SG_L) - FC_C - FC_A] + SG_A$$

$$SG_C = \frac{U_C BM_C}{U_C BM_C + U_A} [SG_T - SG_{At} - SG_B - SG_L]$$

$$SG_A = \frac{U_A}{U_C BM_C + U_A} [SG_T - SG_{At} - SG_B - SG_L]$$

Where: WB is a First Call Grant to the Western Board of Music, CSJ is a special adjustment grant to provide for operation of College St. Jean and SS/SJ is a special purpose grant through The University of Alberta to St. Stephen's and St. Joseph's colleges. $SG_A$, $SG_C$, $SG_L$, $SG_{At}$ and $SG_B$ are Supplementary Grant allocations to the universities (including Athabasca University) and the Banff Centre and $SG_T$ is the total Supplementary Grant.

### 1971-72

$$G_A = N_A + SS/SJ + \frac{U_A}{U_A + U_C + U_L}[G - N_T - SS/SJ]$$

$$G_C = N_C + \frac{U_C}{U_A + U_C + U_L}[G - N_T - SS/SJ]$$

$$G_L = N_L + \frac{U_C}{U_A + U_C + U_L}[G - N_T - SS/SJ]$$

Where: $N_A$, $N_C$ and $N_L$ are the individual Commission allocations of "Non-Formula" Grants to each university and $N_T$ is the total Non-Formula Grant.

### 1972-73

$$G_A = SG_A + N_A + SS/SJ + \frac{U_A}{U_A + U_C + U_L}[G - SG_T - N_T - SS/SJ]$$

$$G_C = SG_C + N_C + \frac{U_C}{U_A + U_C + U_L}[G - SG_T - N_T - SS/SJ]$$

$$G_L = SG_L + N_L + \frac{U_L}{U_A + U_C + U_L}[G - SG_T - N_T - SS/SJ]$$

### 1973-74 to 1975-76

In 1973-74 the Department of Advanced Education implemented a "three-year operating grants scheme". The scheme provided for the determination and allocation of 1974-75 and 1975-76 operating grants to the universities and the Banff Centre, using 1973-74 allocations as a base. Although 1973-74 operating grants were allocated by the Alberta Universities Commission using a model similar to that described above for the 1971-72 allocation, the allocation may be described, in terms of the AAEM approach, as follows:

$$G_A = N_A + U_A FGL$$

$$G_C = N_C + U_C FGL$$

$$G_L = N_L + U_L FGL$$

$$G_{At} = N_{At}$$

$$G_B = N_B$$

Where: FGL (Formula Grant Level) is the dollar value of an enrolment unit.
This formulation enabled the determination of a 1973-74 value for FGL which became the base for future years formula grant levels.

The 1974-75 and 1975-76 allocations may be described as follows:

1974-75

$$G_A = N_A + PD_A + \frac{N_A + U_A FGL}{N_T + U_T FGL} \cdot I + \frac{U_A}{U_T} \cdot T + U_A FGL$$

$$G_C = N_C + PD_C + \frac{N_C + U_C FGL}{N_T + U_T FGL} \cdot I + \frac{U_C}{U_T} \cdot T + U_C FGL$$

$$G_L = N_L + PD_L + \frac{N_L + U_L FGL}{N_T + U_T FGL} \cdot I + \frac{U_L}{U_T} \cdot T + U_L FGL$$

$$G_{At} = N_{At} + \frac{N_{At}}{N_T + U_T FGL} \cdot I$$

$$G_B = N_B + \frac{N_B}{N_T + U_T FGL} \cdot I$$

Where: $PD_A$, $PD_C$ and $PD_L$ are Program Development Grants to The University of Alberta, The University of Calgary and The University of Lethbridge, respectively.

I is the total compensating adjustment for loss of Interest revenue.

T is the total subsidy provided to compensate the institutions for the inflationary loss of Tuition revenue.

1975-76

$$G_A = N_A + PD_A + U_A FGL$$

$$G_C = N_C + PD_C + U_C FGL + SG_C$$

$$G_L = N_L + PD_L + U_L FGL$$

$$G_{At} = N_{At} + SG_{At}$$

$$G_B = N_B + SG_B$$

Where: $SG_C$, $SG_{At}$ and $SG_B$ are Supplementary Grants to The University of Calgary, Athabasca University and the Banff Centre, respectively.

# APPENDIX H

# FIRST CALL AND NON-FORMULA OPERATING GRANTS TO ALBERTA UNIVERSITIES 1967-68 to 1976-77

## First-Call Grants: 1967-68

| | | | |
|---|---|---|---|
| University of Alberta | Public Service | $ 465 000 | |
| | Adviser to Schools of Nursing | 14 000 | |
| | Rentals | 114 000 | |
| | Library Science | 60 000 | |
| | Fixed Costs University Administration | 240 000 | |
| | Faculty Administration | 440 000 | $ 1 333 000 |
| University of Calgary | Public Service | $ 157 000 | |
| | Library Build-Up | 120 000 | |
| | Social Work | 60 000 | |
| | Medicine | 100 000 | |
| | Upper Years Engineering | 50 000 | |
| | Fixed Costs University Administration | 240 000 | |
| | Faculty Administration | 208 000 | $ 935 000 |

## First-Call Grants: 1968-69

| | | | | |
|---|---|---|---|---|
| University of Alberta | Public Service | | $ 520 000 | |
| | Advisor to Schools of Nursing | | 15 000 | |
| | Space Rental | | 115 000 | |
| | Library Science | | 53 000 | |
| | Administrative Establishment | | | |
| | General | 257 000 | | |
| | Faculty & School | 470 000 | 727 000 | $ 1 430 000 |
| University of Calgary | Public Service | | $ 180 000 | |
| | Space Rental | | 20 000 | |
| | Library Build-Up | | | |
| | General | 120 000 | | |
| | Medicine | 130 000 | 250 000 | |
| | Faculty Build-Up | | | |
| | Medicine | 256 000 | | |
| | Social Welfare | 70 000 | | |
| | Engineering | 25 000 | 351 000 | |
| | Administrative Establishment | | | |
| | General | 257 000 | | |
| | Faculty & School | 222 000 | 479 000 | $ 1 280 000 |

## First-Call Grants: 1969-70

| | | |
|---|---|---|
| University of Alberta | $ 678 000 | - sub-allocation not specified, however, "Administrative establishment" support was discontinued. |
| University of Calgary | $1 064 000 | - Medicine $ 700 000, Environmental Design $ 50 000, further sub-allocation of remaining $ 314 000 not specified, however, "Administrative establishment" support was discontinued. |
| University of Lethbridge | $ 50 000 | - first allocation from Transitional Grant to restore a relatively comparable operating surplus position for University of Lethbridge. |

## First-Call Grants: 1970-71

| | | |
|---|---|---|
| University of Alberta | $ 740 000 | - Public Service operations. |
| University of Calgary | $1 465 000 | - sub-allocation not specified. |

## Non-Formula ("Non-Student Related") Grants: 1971-72

| | | | |
|---|---|---|---|
| University of Alberta | Public Service<br>(including Western Board of Music) | | $ 785 000 |
| University of Calgary | Public Service | $ 261 000 | |
| | Medicine | 1 500 000 | |
| | Nursing | 125 000 | |
| | Environmental Design | 175 000 | $ 2 061 000 |
| University of Lethbridge | Public Service | $ 60 000 | |
| | Moving & Restoration | 165 000 | |
| | Rentals | 256 000 | |
| | Emergence | 1 242 000 | $ 1 723 000 |
| Athabasca University | Total Grant | | $ 250 000 |
| Banff Centre | Total Grant | | $ 150 000 |

## Non-Formula Grants: 1972-73

| | | | |
|---|---|---|---|
| University of Alberta | Public Service<br>(including Western Board of Music) | | $ 825 000 |
| University of Calgary | Public Service | $ 275 000 | |
| | Medicine | 2 000 000 | |
| | Nursing | 50 000 | |
| | Environmental Design | 160 000 | $ 2 485 000 |
| University of Lethbridge | Public Service | $ 65 000 | |
| | Emergence | 1 402 000 | |
| | Rentals and Moving | 66 000 | |
| | Restoration of site | 69 000 | $ 1 602 000 |
| Athabasca University | Total Grant | | $ 400 000 |
| Banff Centre | Total Grant (excluding supplementary) | | $ 104 000 |

## Non-Formula Grants: 1973-74

| | | | |
|---|---|---|---|
| University of Alberta | MEETA and AECA | $ 105 000 | |
| | Public Service | 760 000 | $ 865 000 |
| University of Calgary | CARET and AECA | $ 40 000 | |
| | Public Service | 255 000 | |
| | Medicine | 2 575 000 | |
| | Environmental Design | 220 000 | $ 3 090 000 |
| University of Lethbridge | Public Service | $ 70 000 | |
| | Emergence | 1 885 000 | |
| | Cooperative Studies | 75 000 | $ 2 030 000 |
| Athabasca University | Total Grant | | $ 450 000 |
| Banff Centre | Total Grant | | $ 550 000 |

### Non-Formula Grants: 1974-75

| | | |
|---|---|---|
| University of Alberta | $ 917 000 | - sub-allocation not specified (1973-74 grant inflated by 6%). |
| University of Calgary | $ 3 275 000 | - sub-allocation not specified (1973-74 grant inflated by 6%). |
| University of Lethbridge | $ 2 159 000 | - includes $ 100 000 for Cooperative Studies program, further sub-allocation not specified. |
| Athabasca University | $ 770 000 | |
| Banff Centre | $ 1 150 000 | |

### Non-Formula Grants: 1975-76

| | | |
|---|---|---|
| University of Alberta | $ 1 086 000 | - sub-allocation not specified (1973-74 grant inflated by 17.5%). |
| University of Calgary | $ 3 482 000 | - excluding Environmental Design (transferred to formula); further sub-allocation not specified (1973-74 grant inflated by 17.5%). |
| University of Lethbridge | $ 3 022 000 | - includes $ 130 000 for Cooperative studies; $475 000 for improvements; further sub-allocation not specified. |
| Athabasca University | $ 1 300 000 | |
| Banff Centre | $ 1 565 000 | |

### Non-Formula Grants: 1976-77

| | | |
|---|---|---|
| University of Alberta | $ 1 173 000 | - 1975-76 Grant inflated by 8%. |
| University of Calgary | $ 3 759 000 | - 1975-76 Grant inflated by 8%. |
| University of Lethbridge | $ 2 663 000 | - reduction in non-formula grant, compensating increase in formula support, Cooperative Studies grant removed. |
| Athabasca University | $ 1 443 000 | - 1975-76 Grant (excluding Supplementary Grant) inflated by 11%. |
| Banff Centre | $ 1 859 000 | - 1975-76 Grant (including Supplementary Grant) inflated by 11%. |

# APPENDIX I

## OPERATING GRANTS FOR UNIVERSITIES

## 1973-74 to 1975-76

## THE ORIGINAL THREE-YEAR OPERATING GRANTS SCHEME

(Reproduced to show content, not format.)

## APPENDIX I

## OPERATING GRANTS FOR UNIVERSITIES
## 1973-74 to 1975-76

## THE ORIGINAL THREE-YEAR OPERATING GRANTS SCHEME

(ALBERTA ADVANCED EDUCATION LETTERHEAD)
Office of the Deputy Minister

August 24, 1973

(Sample of Letter to University Presidents)

Dear Dr. Carrothers:

On August 8, 1973, the Minister of Advanced Education announced approval of the last two years of a three-year university financing plan to cover 1974/75 and 1975/76. The announcement outlined the amounts that were to be provided to each institution but it did not give any details on the method of payment, how the amounts were calculated, what the grants were to include, or other conditions that were to apply.

We have updated the information document "Operating Grants for Universities - 1973/74 to 1975/76" that was distributed and discussed with the institutions on July 19, 1973. A copy of this document is enclosed for your information. This now forms the basis for university financial support for the years indicated.

There are some items which apply specifically to your institution that are not included in the general statement that we would like to bring to your attention:

1. The non-formula portion of the operating grant includes an amount previously identified to support the public service component of the University of Calgary's total service offering. To ensure that this portion of non-formula grant will be provided, this service must be continued.

2. The non-formula portion of the operating grant also includes amounts for the support of Medicine and Environmental Design. We intend to conduct a joint review, with your University, of the financing and enrolment units weightings of these programs to determine a better basis for funding after 1975/76.

3. The non-formula grant was not reduced by the amount previously included to support Calgary And Region Educational Television. It is expected that this amount will be used to purchase services from the newly-created Alberta Educational Communications Corporation.

We sincerely hope the decision on operating grants at this time will allow us to meet the objectives outlined in the enclosed paper, as well as those identified in our discussions during the past few months.

Should you have any questions or comments, please do not hesitate to contact me or other members of the Department.

Yours sincerely,

/s/ W. H. Worth

W. H. Worth
Deputy Minister

Encl.

## DEPARTMENT OF ADVANCED EDUCATION

## OPERATING GRANTS FOR UNIVERSITIES - 1973/74 TO 1975/76

(Approved by Executive Council July 31, 1973)

This three-year operating grants scheme is intended to provide the four universities, the Banff Centre, and the Department of Advanced Education with an opportunity for effective and efficient joint planning. Such planning requires a reassessment of each institution's essential and relatively unique contributions to the life of the province and to the broader community, with appropriate adjustments in programs, services and staffing arrangements to ensure wise and prudent use of resources. It also requires that the criteria and methods applied in determining total annual support, and in the distribution of this total among the institutions be reassessed.

### Basic Guidelines

1. Formula and non-formula grants will be provided in 1974-75 and 1975-76 to Alberta, Calgary and Lethbridge. Athabasca and Banff will receive non-formula grants only.
2. Beginning in fiscal 1974-75, grants will be paid on a monthly basis over twelve months rather than over nine months as at present. Compensation will be provided for loss of interest revenue.
3. The formula grant will be based on enrolment units rather than full-time or full-time equivalent students with a no-growth assumption based upon 1973-74 estimates of enrolment.
4. Fixed grants will be established for 1974-75 and 1975-76. To ensure a measure of fiscal certainty for both the institutions and the government, these grants will not be changed should actual enrolments in the first year of the scheme differ from those forecast by less than 7.5% for Alberta and 5.0% for Calgary. If the variation exceeds this range in either or both universities, a review will be initiated by Department.
5. Student tuition fees will not be changed during the three-year period. A subsidy will be provided to compensate for the erosion of revenue from inflation.
6. In 1974-75 the grants to the universities will be based on the 1973-74 grant, and in 1975-76 the grants will be based on the 1974-75 grant. In recognition of increasing costs, an adjustment of 6% will be applied to the 1973-74 grant for 1974-75 and an adjustment of 5% will be applied to the 1974-75 grant for 1975-76.
7. The Department will continue to be interested in the total revenues and expenditures of all universities and the Banff Centre.
8. All institutions will be expected to plan to achieve balanced budgets in each fiscal year based upon current revenues and expenditures.
9. There will be no change in fiscal year for any institution during the three-year period.
10. Major changes in the services provided by the universities and the Banff Centre will be considered in accordance with policies and procedures being developed by the Program Services Division of the Department of Advanced Education.

## Basic Guidelines - Application

### 1. Formula Grant Unit

| 1973-74 | 1974-75 | 1975-76 |
|---|---|---|
| $ 1,572 | $ 1,666 | $ 1,749 |

### 2. Enrolment Units

| | |
|---|---|
| Alberta | 38,600 |
| Calgary | 18,300 |
| Lethbridge | 1,950 |
| | 58,850 |

### 3. Tuition Revenue Compensation

Allowance:

| | | | |
|---|---|---|---|
| 1974-75 | 6% of 13,800,000 | = | 828,000 |
| 1975-76 | 5% of 14,628,000 | = | 731,000 |

Distribution:

| | | | | |
|---|---|---|---|---|
| 1974-75 | Alberta | $\frac{38,600 \text{ EU}}{58,850 \text{ EU}}$ x 828,000 | = | 543,000 |
| | Calgary | $\frac{18,300 \text{ EU}}{58,850 \text{ EU}}$ x 828,000 | = | 258,000 |
| | Lethbridge | $\frac{1,950 \text{ EU}}{58,850}$ x 828,000 | | 27,000 |
| | | | | 828,000 |
| 1975-76 | Alberta | $\frac{38,600 \text{ EU}}{58,850 \text{ EU}}$ x 1,559,000 | = | 1,022,000 |
| | Calgary | $\frac{18,300 \text{ EU}}{58,850 \text{ EU}}$ x 1,559,000 | = | 485,000 |
| | Lethbridge | $\frac{1,950 \text{ EU}}{58,850 \text{ EU}}$ x 1,559,000 | = | 52,000 |
| | | | | 1,559,000 |

### 4. Interest Revenue Compensation

Allowance:

| | |
|---|---|
| 1974-75 | $1,000,000 |
| 1975-76 | $1,000,000 |

Distribution:

1974-75 and 1975-76 ($000's)

| | 1974-75 Grant | Compensation In Total Revenue | Total | % of Total | Compensation |
|---|---|---|---|---|---|
| Alberta | 65,225 | 543 | 65,768 | 61.6 | 616 |
| Calgary | 33,763 | 258 | 34,021 | 31.9 | 319 |
| Lethbridge | 5,311 | 27 | 5,338 | 5.0 | 50 |
| Athabasca | 770 | - | 770 | .7 | 7 |
| Banff | 900 | - | 900 | .8 | 8 |
| | 105,969 | 828 | 106,797 | 100.0 | 1,000 |

## Grant Calculations (thousands)

### Alberta 1974-75

| | | | |
|---|---|---|---|
| Non-formula | 865 x 1.06 | = | 917 |
| Formula | 38,600 x 1666 | = | 64,308 |
| Interest Revenue Compensation | | | 616 |
| Tuition Revenue Compensation | | | 543 |
| | | | 66,384 |

### Alberta 1975-76

| | | | |
|---|---|---|---|
| Non-formula | 917 x 1.05 | = | 963 |
| Formula | 38,600 x 1749 | = | 67,511 |
| Interest Revenue Compensation | | | 616 |
| Tuition Revenue Compensation | | | 1,022 |
| | | | 70,112 |

### Calgary 1974-75

| | | | |
|---|---|---|---|
| Non-formula | 3,090 x 1.06 | = | 3,725 |
| Formula | 18,300 x 1666 | = | 30,488 |
| Interest Revenue Compensation | | | 319 |
| Tuition Revenue Compensation | | | 258 |
| | | | 34,340 |

### Calgary 1975-76

| | | | |
|---|---|---|---|
| Non-formula | 3,275 x 1.05 | = | 3,439 |
| Formula | 18,300 x 1749 | = | 32,007 |
| Interest Revenue Compensation | | | 319 |
| Tuition Revenue Compensation | | | 485 |
| | | | 36,250 |

### Lethbridge 1974-75

| | | | |
|---|---|---|---|
| Non-formula | 1,945 x 1.06 | = | 2,062 |
| Formula | 1,950 x 1666 | = | 3,249 |
| Interest Revenue Compensation | | | 50 |
| Tuition Revenue Compensation | | | 27 |
| | | | 5,388 |

### Lethbridge 1975-76

| | | | |
|---|---|---|---|
| Non-formula | 2,062 x 1.05 | = | 2,165 |
| Formula | 1,950 x 1749 | = | 3,411 |
| Interest Revenue Compensation | | | 50 |
| Tuition Revenue Compensation | | | 52 |
| | | | 5,678 |
| Add: Special allowance - Work Study Program | | | 125 |
| | | | 5,803 |

### Athabasca 1974-75

| | |
|---|---|
| Non-formula | 770 |
| Interest Revenue Compensation | 7 |
| | 777 |

### Athabasca 1975-76

| | |
|---|---|
| Non-formula | 900 |
| Interest Revenue Compensation | 7 |
| | 907 |

### Banff 1974-75

| | |
|---|---|
| Non-formula | 900 |
| Interest Revenue Compensation | 8 |
| | 908 |

### Banff 1975-76

| | |
|---|---|
| Non-formula | 1,000 |
| Interest Revenue Compensation | 8 |
| | 1,008 |

# APPENDIX J

# PROGRAM DEVELOPMENT GRANTS

# TO

# ALBERTA UNIVERSITIES

# 1974-75 to 1976-77

# AND

# PUBLIC COLLEGES

# 1974-75 and 1975-76

## TABLE 1

## PROGRAM DEVELOPMENT GRANTS TO ALBERTA UNIVERSITIES

| | | | |
|---|---|---|---|
| 1974-75 | University of Alberta | Mineral Engineering (NCD) | $ 152 000 |
| | | Extended Practicum (NCD) | 161 000 |
| | University of Calgary | Law (NCD) | $ 30 000 |
| | | Teachers of French (NCD) | 64 000 |
| | | Masters Management Studies (NCD) | 5 000 |
| | University of Lethbridge | Native American Studies (NCD) | $ 56 000 |
| | | Extended Practicum (NCD) | 138 000 |
| | | Management Arts (NCD) | 30 000 |
| 1975-76 | University of Alberta | Mineral Engineering (UG) | $ 205 000 |
| | | Extended Practicum (UG) | 428 000 |
| | | Project Morning Star (NCD) | 150 000 |
| | University of Calgary | Law (UG) | $ 208 000 |
| | | Teachers of French (UG) | 92 000 |
| | | Masters Management Studies (UG) | 50 000 |
| | | Extended Practicum (UG) | 110 000 |
| | | Extended Practicum (NCD) | 50 000 |
| | University of Lethbridge | Native American Studies (NCD) | $ 117 000 |
| | | Management Arts (NCD) | 75 000 |
| 1976-77 | University of Alberta | Mineral Engineering (UG) | $ 222 000 |
| | | Project Morning Star (UG) | 170 000 |
| | | Advanced Practical Obstetrics (NCD) | 77 000 |
| | University of Calgary | Law (UG) | $ 400 000 |
| | | Masters Management Studies (UG) | 82 000 |
| | University of Lethbridge | Native American Studies (UG) | $ 149 000 |
| | | Management Arts (UG) | 150 000 |
| | | Cooperative Studies (UG) | 145 000* |

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Notes: *previously included in general non-formula grants

UG - University Grants appropriation
NCD - New Course Development appropriation

## TABLE 2

## PROGRAM DEVELOPMENT GRANTS TO PUBLIC COLLEGES
## 1974-75 AND 1975-76

| INSTITUTION/PROGRAM | 1974-75 | 1975-76 |
|---|---|---|
| GRANDE PRAIRIE REGIONAL COLLEGE | | |
| 2nd Year University Transfer | $ 108 100 | $ 145 600 |
| Early Childhood Education | 17 800 | 74 270 |
| Self-Study Programming | 31 600 | 38 800 |
| Peace River Corrections | - | 44 390 |
| TOTAL GRANDE PRAIRIE | $ 157 500 | $ 303 060 |
| GRANT MACEWAN COMMUNITY COLLEGE | | |
| Teacher Aide | $ 15 000 | $ 55 000 |
| Travel Consultant | 25 300 | 48 800 |
| Education Management | 10 000 | 13 000 |
| Retailing | 15 300 | 37 400 |
| Occupational Health Nursing | 13 000 | - |
| Cree | 19 600 | 29 100 |
| Supplementary Nursing | 33 400 | - |
| Research Assistant | - | 56 250 |
| Rehabilitation Services | - | 59 000 |
| Property Management | - | 37 000 |
| TOTAL GRANT MACEWAN | $ 131 600 | $ 335 550 |
| MOUNT ROYAL COLLEGE | | |
| Corrections Officer | $ 11 800 | $ - |
| TOTAL MOUNT ROYAL | $ 11 800 | $ - |
| RED DEER COLLEGE | | |
| Teacher Aide | $ 17 000 | $ 41 650 |
| Nursing Management | 12 300 | 21 000 |
| Rehabilitation Counsellor | 56 600 | 125 600 |
| Early Childhood Education | 30 000 | 71 920 |
| Chemistry Technology | | 44 870 |
| Law Office Administration | | 38 740 |
| TOTAL RED DEER | $ 115 900 | $ 343 780 |
| TOTAL PUBLIC COLLEGES | $ 416 800 | $ 982 390 |

# APPENDIX K

# PUBLIC COLLEGES OPERATING BUDGETS SUBMISSION FORMAT (SUMMARIES)

## 1975-76

(Reproduced to show content, not format.)

# APPENDIX K

## PUBLIC COLLEGES OPERATING BUDGETS
## SUBMISSION FORMAT (SUMMARIES)
## 1975-76

**(ALBERTA ADVANCED EDUCATION LETTERHEAD)**

**Administrative Services**

**December 19, 1974**

**Public College Presidents**

**Re: Budget Submission 1975/76**

**At the December meeting of College Finance Officers, it was agreed that for budget submission purposes the 1974/75 format would be used. There appeared to be little support to change the format at this time, but there was support to provide supplementary information. It was also agreed that each College, as an exercise, would attempt to complete the new format, and thereby make recommendations for modification.**

**In addition to the completion of the attached budget document, it was generally agreed that the following supplementary information be provided:**

1. **The College budget as submitted to the Board.**
2. **A description of the Board's policies respecting the items listed on page one of the budget document.**
3. **An outline of volume indicators for Student Affairs, Direct Instruction and Continuing Education - the volume indicator for Student Affairs should be the total number of students attending the institution. Direct Instruction should indicate the total number of students and number of persons served, the number of courses taught and the number of hours of instruction. The calculation of F.T.E. should be on the same basis as was agreed upon with Planning and Research Services.**
4. **An updated organizational chart which includes the major instructional areas - identify the College's policy regarding possible teaching duties of administrators.**
5. **Where the format shows a salary expenditure, indicate the number of persons employed by that unit and F.T.E. of the persons.**

**This supplemental information will not only assist us in all evaluation of the 1975/76 budget submission, but will also assist us in the government-wide conversion to program budgeting.**

**If you or your Finance Officer require any additional information or assistance, please contact me or a member of my staff.**

**Sincerely,**

**ALBERTA ADVANCED EDUCATION**

ALBERTA ADVANCED EDUCATION

OPERATING BUDGET ______________________ COLLEGE FOR THE YEAR ENDING JUNE 30, 1976

PUBLIC COLLEGE SYSTEM

BUDGET REPORT - 1975/76

NOTES:

Volume Indicators

Volume refers to the amount of service or number of persons receiving the service which is provided by a division. The expression can be in terms of enrolment (F.T.E.), number of documents processed, square footage, etc. Please specify the indicator used.

Manpower

A man-year is defined to be: for instructors teaching a full term or its equivalent, for administrators - 261 working days. The man-year information is significantly different from merely a count of the number of persons on staff at any particular point in the year. It is the expected term of employment for the full fiscal year. Account should be taken of possible vacancies and late hiring.

Policies

In order for the Department to properly assess each budget request, it is important that it be aware of present and anticipated policies of the Board that may have a bearing on the final budget allocation, therefore, describe Board policies, if any, regarding the following:

a) Honorariums ______________________________

______________________________

b) Staff Development ______________________________

______________________________

c) Travel ______________________________

______________________________

d) Scholarships ______________________________

______________________________

e) Research ______________________________

______________________________

f) Student Health ______________________________

______________________________

g) Further Education ______________________________

______________________________

h) ______________________________

______________________________

## PUBLIC COLLEGE SYSTEM
## BUDGET SUMMARY
## For The Year Ending June 30, 1976

| EXPENDITURES: | 1975-76 Budget Request | 1974-75 Approved Budget | % Change |
|---|---|---|---|
| **1. INSTITUTIONAL SUPPORT** | | | |
| Board & President | | | |
| Financial Administrative Management | | | |
| Support Services | | | |
| **2. INSTRUCTION** | | | |
| Educational Management | | | |
| Direct Instruction | | | |
| **3. ACADEMIC SUPPORT** | | | |
| Library | | | |
| Audio-Visual | | | |
| **4. STUDENT SERVICE** | | | |
| Counselling & Guidance | | | |
| Health Service | | | |
| **5. PUBLIC SERVICE** | | | |
| **6. FURTHER EDUCATION** | | | |
| **7. RESEARCH & DEVELOPMENT** | | | |
| Institutional Research | | | |
| Individual Research | | | |
| **TOTAL EXPENDITURE** | | | |
| **REVENUES:** | | | |
| Gross Student Fees __________ F.T.E. X $________ | | | |
| Canada Manpower Grants . . . . . . . . . . . . . . . . | | | |
| Apprenticeship Grants . . . . . . . . . . . . . . . . | | | |
| Further Education Revenue . . . . . . . . . . . . . | | | |
| Public Service . . . . . . . . . . . . . . . . . . . . | | | |
| Other Revenue (Specify) . . . . . . . . . . . . . . | | | |
| Application & Registration Fees . . . . . . . . . . | | | |
| Activities Fees . . . . . . . . . . . . . . . . . . . | | | |
| Other Fees & Miscellaneous . . . . . . . . . . . . . | | | |
| **TOTAL REVENUE** | | | |
| **NET EXPENDITURE** | | | |

## PUBLIC COLLEGE SYSTEM

## ANCILLARY ENTERPRISES SUMMARY

### For The Year Ending June 30, 1976

| | Expenditure | Revenue | Net | Volume of Service |
|---|---|---|---|---|
| CAFETERIA | | | | |
| BOOKSTORE | | | | |
| RESIDENCES | | | | |
| SNACK BAR | | | | |
| OTHER (specify | | | | |
| TOTAL | | | | |

## PUBLIC COLLEGE SYSTEM

### MANPOWER - SUMMARY

| | 1975-76 | | 1974-75 | |
|---|---|---|---|---|
| | Man-Years | Positions | Man-Years | Positions |
| 1. INSTITUTIONAL SUPPORT | | | | |
| Finance Management | | | | |
| Support Service | | | | |
| 2. INSTRUCTION | | | | |
| Educational Management | | | | |
| Direct Instruction | | | | |
| (a) Arts | | | | |
| (b) Science | | | | |
| (c) Vocational | | | | |
| (d) Special Session | | | | |
| (e) Extension for Credit | | | | |
| (f) Other | | | | |
| 3. ACADEMIC SUPPORT | | | | |
| Library | | | | |
| Audio-Visual | | | | |
| Computing | | | | |
| Duplicating | | | | |
| 4. STUDENT SERVICE | | | | |
| Counselling & Guidance | | | | |
| Health Service | | | | |
| 5. PUBLIC SERVICE | | | | |
| 6. FURTHER EDUCATION | | | | |
| Administration | | | | |
| Programming | | | | |
| 7. RESEARCH & DEVELOPMENT | | | | |
| Institutional Research | | | | |
| Individual Research | | | | |
| TOTAL | | | | |

# APPENDIX L

# ADVISORY LETTER TO PUBLIC COLLEGES

# 1975-76 FINANCIAL GUIDELINES

(Reproduced to show content, not format.)

# APPENDIX L

## ADVISORY LETTER TO PUBLIC COLLEGES - 1975-76 FINANCIAL GUIDELINES

(ALBERTA ADVANCED EDUCATION LETTERHEAD)

Administrative Services Division
November 5, 1974

### PUBLIC COLLEGE SYSTEM

### 1975-76 Financial Guidelines
### and
### Discussion of Financial Issues
### Capital and Operating Grants

**Enrolments**

*An enrolment target will be established and a tolerance range of ± 10% will be allowed. The Department will review any case where the actual enrolment falls outside of the range.*

Discussion:

The 1974 fall enrolment will be used as the basis for establishing an enrolment target for 1975-76. The Department, through the Director of Research and Planning Services, will initiate discussions with the colleges and arrive at a procedure whereby this enrolment target can be agreed upon.

Once a target enrolment is established, an enrolment range will be created to be used in establishing the budget. The range will be ± 10% of the established target enrolment. If an institution finds its actual enrolment to be outside this range, it should notify the Department immediately in order that the Department can conduct a review and decide what action should be taken.

**Provincial Support**

*The Department is prepared to allow increases to its support per F.T.E. student by up to 15%.*

Discussion:

In assessing its needs for the coming year, colleges should consider the effects of price increases, change in priorities, and quality improvements. Those colleges projecting a growth in their enrolment should also consider economies of scale.

The net change in the F.T.E. student support requested from the province, resulting from the above items, should be clearly outlined in the budget submissions and should not exceed 15%.

**Budget Approval**

*The annual budget must be submitted for approval or amendment to the Minister.*

**Tuition Fees**

*Colleges must submit their proposed tuition fee schedule for 1975-76 to the Minister for approval.*

Discussion:

The Department does not expect to change tuition fee charges for 1975-76 in the colleges except in Lethbridge where the college is gradually raising their fee to the same level as the other colleges. However, The Colleges Act states fees are to be approved by the Minister. This approval has been granted annually, therefore colleges must submit their proposal for the Minister's approval. These proposals are to be submitted to the Director of Financial Planning Services by January 31, 1975.

**Manpower Programs**

*The Department will assess the effects on the colleges, of the changes in Canada Manpower priorities and recommend procedures to accommodate these changes.*

Discussion:

Canada Manpower has changed the emphasis for its purchases over the last few years. All indications point to continuing change. The impact of these changes has not been assessed in the college system. It is expected that some of the programs normally offered for Manpower sponsored students will no longer be required.

The Department and the colleges will assess the effect the changes in Manpower priorities has had on the institutions. Also, the Department will assess the effects the future agreements will have on the institutions.

**New Programs**

*The cost of those new programs approved in 1974-75 and continuing in 1975-76 must be specifically identified in the budget submission.*

*Colleges who anticipate adding new programs in 1975-76 must not include these costs or students in their regular budget submission.*

Discussion:

The Department will continue the procedure established in 1974-75 for the approval and funding of new programs. It is anticipated the majority of enrolment growth in the total advanced education system will be attributable to the new programs approved in 1974-75 and those expected in 1975-76.

For new programs approved during 1974-75 or 1975-76, colleges are required to provide an accounting of the funds provided and spent to the Assistant Deputy Minister of Program Services.

If new programs are approved for a term certain duration, it is imperative that an institution not build into their operation a permanent capability to offer such programs.

## Further Education

Discussion:

When our Further Education Policy is approved by Cabinet, the Department will be able to elaborate further on the effect it will have on funding in the college system.

## Contracts and Agreements with Other Authorities

*Colleges may enter into contracts or agreements with other authorities.*

Discussion:

The Department recognizes that colleges may enter into training contracts or agreements with other authorities. The Department does, however, require assurance that these are appropriate to the college and the system. In the event of a possible conflict of interest, colleges should seek the approval of the Department before finalizing the contract or agreement.

Any contract or agreement with other authorities should be made on the basis that no supplementary funds will be required from the Department and that no long-term commitments remain upon termination. The Department will continue to monitor such contracts and agreements.

In the event colleges require assistance in finalizing any such contracts and agreements, the Department is prepared to assist an institution with any problems that may arise.

## Budget Control

*It is expected that each college will exercise proper controls in its business affairs.*

## Surpluses

*If a college has an operating surplus it must obtain the approval of the Department before these funds are committed.*

## Capital

*Capital grants for furnishings and equipment will continue to be provided on the basis of the formula established by Campus Development Services.*

*Other capital expenditures will be considered on an individual project approval basis.*

Discussion:

Colleges are expected to maintain a continuing contact with the Department through the Director of Campus Development Services on all capital projects. This continuing contact will be the basis for establishing annual capital budgets for the college system.

## Payment Schedule

*Operating grants will be paid to the colleges in monthly installments.*

*Capital grants will be paid on the basis of claims submitted.*

## Budget Format and Timeline

*Operating budgets will be submitted on the standard format adopted by the Department on or before January 31, 1975.*

Discussion:

The Budget Format used for submission to the Department will be changed for 1975-76. Primarily, the changes will be an expansion of the information required. Categories of expenditures and other standard features probably will remain the same as in previous years.

The format that is being developed will be discussed with colleges before it is finalized. The main reason for changing format is to assist the Department to convert its total budget to the Program Budgeting System as designed by Alberta Treasury.

# APPENDIX M

## ALBERTA UNIVERSITY SYSTEM ENROLMENT UNIT WEIGHTINGS*

## 1972-73

A STATEMENT OF 1972-73 ENROLMENT UNIT WEIGHTS ASSIGNED TO THE VARIOUS TYPES AND LEVELS OF ENROLMENT

| Weight Assigned | Type and/or Level of Student |
|---|---|
| **1. Full-Time Undergraduate Students** | |
| 1 | General Arts (including B.A. after previous degree); Specialized four-year Arts; first year Honors Arts; General Science; first year Specialized four-year Science, first year Honors Science; first two years Agriculture; first two years Household Economics; first two years Nursing; Social Welfare. |
| 1.5 | Upper Years Honors Arts; Fine Arts; Upper Years Specialized four-year Science; Optional fourth year Arts and Science; Commerce; Dental Hygiene; first two years Education; first two years Engineering; Law; Medical Laboratory Science; Physical Education; Rehabilitation Medicine. |
| 2 | Upper Years Honors Science; Upper Years Education (including Diploma in Education and B.Ed. after previous degree); Upper Years Household Economics; Library Science; Music; Upper Years Nursing; Pharmacy. |
| 3 | Dentistry (D.D.S.); Upper Years Engineering; Medicine (M.D.) (including Post-graduate medical education). |
| 4 | Upper Years Agriculture |
| **2. Full-Time Graduate Students** | |
| 2 | Masters in Business Administration, Environmental Design, Library Science and Social Welfare. |
| 3 | Masters level and first year Doctoral in: Arts; Education; Law. |
| 4 | Masters level and first year Doctoral in: Science; Dentistry; Engineering; Household Economics; Medicine; Pharmacy; Physical Education. |
| 5 | Masters level and first year Doctoral in Agriculture. |
| 6 | Upper Years Doctoral students - except Agriculture. |
| 8 | Upper Years Doctoral students - in Agriculture. |

3. Part-Time Students

(a) Part-time undergraduate students (regular session, evening credit, spring and summer session) receive one-fourth the weight of full-time students in the same program of study.

(b) Part-time graduate students receive one-third the weight of full-time students in the same program of study.

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* - Current enrolment unit weight for masters level students in Environmental Design is 4.0.

# APPENDIX N

# SELECTED MATERIALS FROM CALIFORNIA POSTSECONDARY EDUCATION COMMISSION PLANNING DOCUMENT[1]

## CALIFORNIA POSTSECONDARY EDUCATION COMMISSION STATE GOALS

" I. ACCESS AND RETENTION

"A. Insure that all persons have convenient access to educational and career counseling in order that they be encouraged to make informed choices from among all available options.

"B. Maximize physical access to educational institutions, centers, programs, or services.

"C. Insure that all learners be provided adequate student support services to enable them to participate fully in postsecondary education.

"D. Foster postsecondary education services which allow an individual to pursue educational and career goals throughout life.

"E. Work to eliminate financial barriers which prevent students from selecting and pursuing the educational or occupational program for which they are qualified.

"F. Foster a well-articulated system of programs and services in postsecondary education which is responsive to individual educational needs, in order to provide the opportunity for students to progress at a rate appropriate to their abilities.

"G. Utilize admissions and registration procedures which will facilitate each person's pursuit of an educational or occupational program appropriate to his/her ability and aspirations.

"H. Work toward the equitable participation of ethnic minorities and women in the admission and retention of postsecondary education students.

" II. ACCREDITATION AND CREDENTIALING

"A. Encourage the increased effectiveness of accreditation of postsecondary education institutions in the State.

"B. Encourage postsecondary education to develop a comprehensive system of valid measures for knowledge gained both inside and outside formal academic programs.

"C. Encourage the establishment of educational requirements for licensure that are appropriate and reasonable in certifying occupational competency and the development of means for meeting these requirements including both educational programs and competency testing.

"D. Work toward public understanding of the nature and significance of academic degrees, including their strengths and limitations as a measure of ability and skills.

"III. FINANCING

"A. Insure that State funds are allocated and employed in a manner which will provide for the optimum utilization of all postsecondary education resources in the State.

"B. Provide adequate funding to meet operating and capital needs of public postsecondary education and to employ the most effective methods for determining the adequacy of State funding for postsecondary education in California.

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[1] California Postsecondary Education Commission, Planning for Postsecondary Education in California: A Five-Year Plan 1976-81, (Sacramento, California: December 1975).

"C. Determine the financial needs of independent institutions and the extent to which the State should aid in meeting these needs.

"D. Develop a process for insuring that federally funded postsecondary education programs in California are in harmony with State priorities in postsecondary education.

" IV. ORGANIZATION AND GOVERNANCE

"A. Maintain a proper distribution of authority among institutions, segments, and the State in order to achieve effective coordination of educational resources without inhibiting creativity at the institutional or segmental level.

"B. Encourage regional interinstitutional or intersegmental cooperation which will facilitate and enhance the effective coordination and delivery of educational services.

"C. Insure that in the process of collective bargaining, the operations and philosophy of postsecondary educational institutions be retained in the context of academic freedom and collegiality.

"D. Work toward achieving an equitable participation of ethnic minorities and women in administrative faculty; and staff positions in postsecondary education institutions.

"E. Encourage the participation of independent colleges and universities and private vocational institutions in the statewide planning process to insure orderly development of postsecondary education in California.

"F. Determine the need for new services to part-time adult students and the best means for meeting this need.

"G. Develop a series of comprehensive state-level systems of information collection, storage, retrieval and dissemination which will facilitate the making of informed decisions about postsecondary education.

"H. Recognize the interests of students, faculty, staff, administrators, and the general public in the governance of postsecondary education.

" V. PROGRAMS AND SERVICES

"A. Improve the collection and dissemination of information on State and national manpower needs and consider this information in the planning and evaluation of related education programs.

"B. Assess the quality of academic and vocational programs, and the means used for establishing, maintaining, or improving such quality.

"C. Provide maximum flexibility in the mode and format of instruction and in the use of instructional media in order to encourage and facilitate individual learning.

"D. Maintain and periodically review the effectiveness of the differentiation of functions among the public segments of California postsecondary education including the designation of specialized missions for campuses within the segments.

"E. Continue to affirm the worth of teaching, research, and public service in order to provide appropriate incentives and rewards to those who carry out these activities.

"F. Develop and maintain an integrated statewide vocational education planning process involving all affected State agencies concerned with vocational education planning at both the secondary and postsecondary levels.

"G. Assure that adequate public support is directed to the discovery of new knowledge."

EXAMPLE OF A PLAN OF ACTION FOR A GOAL RELATED TO POSTSECONDARY EDUCATION FINANCING

"State Goal

"Provide adequate funding for operating and capital needs of public postsecondary education and to employ the most effective methods for determining the adequacy of State funding for postsecondary education in California. (Goal III-B)

"Program 1

*"To improve procedures for determining the level and sources of operating and capital outlay funding for California's Community Colleges.*

"The State has increased its support of Community Colleges to provide nearly 40 percent of the operating budgets and nearly 50 percent of the capital outlay budgets of these institutions. If present enrollment plans of Community Colleges are realized, and if there are no major changes in the sources and methods of financing Community Colleges, by 1980-81 over 50 percent of the operating budgets of these institutions would come from the State. Total State apportionments to Community College districts would be nearly double what they are today, and the people of California would have spent roughly $600 million on buildings, plants, and equipment. Consequently, over the next five years, Community College expansion and financing may be the most controversial postsecondary education issue in California.

"The present system of financing Community Colleges is cumbersome, its consequences uncertain, and the fiscal burdens it creates inequitable. Leaving aside questions of continued expansion and levels of funding, a consensus exists for the need to reform this machinery. Language in the State's 1975-76 budget directed the Postsecondary Education Commission to study 'alternative funding procedures for Community Colleges.' The Commission initiated this project in the summer of 1975.

"Program Activity:

> "1. Conduct a comprehensive study of Community College financing, including but not limited to:
> (1) determining the appropriate level of State financial control and support of the Community College system, (2) examining the procedures and formulae by which Community Colleges are funded, and (3) recommending changes in these procedures. (1976)

"Program 2

*"Develop a process which will permit evaluation of segmental budget requests within the context of the Statewide Five-Year Plan for Postsecondary Education*

"Chapter 5.5 of the Education Code expresses the intent of the Legislature to utilize the Commission's advice in reaching decisions on requests for funding new and continuing programs, graduate and professional programs, enrollment levels, and capital outlay. The Commission is also required to advise the Legislature and the Governor as to the compatability of segmental budget requests with the Five-Year State Plan developed by the Commission. Finally, the Commission is directed to participate in the development of the State's budget for public postsecondary education when requested to do so by the Legislature and the Governor.

"If the Commission is to meet these responsibilities, it must, according to A. Alan Post,

> '... play a very direct and effective role at each of the points where policy is made in higher education ...at (1) the President, Chancellor, or other administrative leadership level, (2) the Regent or Trustee level, (3) the Governor, and (4) the Legislature. Policy is determined in part at each of these points.
>
> To start with, the Commission and its staff must have good communication with each point expressed in sound functional relationships. The way for a staff operation or a coordinating body to be effective is to participate effectively at the point and time when decisions are made.'

"Further, Mr. Post stated:

> 'The Commission should...carry its research and recommendations into the Governor's deliberations on the budget and the Legislature's hearings on the budget and education bills. (Address to the Commission, April 8, 1974.)'

"The current budgetary process does not permit meaningful evaluation of segmental budget requests within the context of the Five-Year Plan. However, before establishing comprehensive criteria for the evaluation of operating and capital outlay budget levels for public four-year institutions, it is essential the Commission staff become thoroughly familiar with the present budgetary process.

"By carefully observing the budget process, the Commission will be better able to anticipate requests from the Legislature and the Executive branch to participate in the development of the State's budget and to provide informed advice when called upon.

"Program Activities:

"1. Study thoroughly during one budget cycle the procedures and steps followed by the State in preparing and executing the annual budgets of the University of California and the California State University and Colleges. (1975-76)

"2. Study, during one budget cycle, the procedures and steps followed by the University of California and the California State University and Colleges in preparing their annual budgets. (1976)

"3. Develop, in cooperation with the segments, procedures and a format for correlating current segmental budgets with the goals in the Five-Year State Plan. (1976)

"4. Submit to the Governor and the Legislature, in March of each year, a report on the compatibility of the proposed Governor's budget with the Commission's priorities as set forth in the current Five-Year State Plan (preliminary comments on system 1976, if requested; report 1977, and annually thereafter)."

## EXAMPLE OF AN EFFECTIVENESS EVALUATION PROGRAM RELATED TO A CALIFORNIA STATE GOAL ON DEVELOPMENT OF INFORMATION SYSTEMS FOR POSTSECONDARY EDUCATION

*"Implement the criteria for evaluating the effectiveness of postsecondary education, as adopted by the Commission in June 1975.*

"The Committee on evaluation was established in August 1974, to develop and recommend to the Commission what aspects of postsecondary education the Commission should evaluate and techniques for evaluation in the areas recommended. In June 1975, the Committee made its final report to the Commission, including recommendations relating to its charge .... The Committee recommended seven aspects as focal points for organizing a system for monitoring the condition of postsecondary education:

"*Costs and resources available to finance postsecondary education;
"*Access and admission to postsecondary education, including student financial aid;
"*Student quality and performance;
"*Manpower needs and career preparation;
"*Educational functions, programs, and services;
"*Physical facilities and their utilization; and
"*Innovations and other developments.

"The monitoring approach involves the selection of data and indicators relating to each aspect and the choice of criteria for use in evaluating the findings from the use of indicators. Monitoring is to be done annually, using (1) current, objective data from the state-level information systems; (2) indicators of changes, trends, and other events; and (3) a variety of criteria and standards for making judgments about the condition. In addition to annual monitoring, there will be periodic monitoring of selected aspects where data are not routinely available in the state-level information systems, or which do not require monitoring on an annual basis. Finally, in-depth evaluative studies will be proposed in areas where routine monitoring reveal problems which merit special investigation.

"The program is assigned to the standing Committee on Information Systems for policy implications, and to the Technical Advisory Committee for [illegible]lity.

"Program Activities:

"1. Develop data/indicators and criteria for monitoring the area of Student Quality and Performance (1975)

"2. Develop data/indicators and criteria for monitoring the area of Access and Admission to Postsecondary Education, including Student Financial Aid. (1975)

"3. Develop data/indicators and criteria for monitoring the area of Educational Functions, Programs, and Services; issue progress report on the monitoring of Student Quality and Performance. (1976)

"4. Develop data/indicators and criteria for monitoring the area of Innovation and Other Developments; issue progress report on the monitoring of Access and Admission to Postsecondary Education. (1976)

"5. Develop data/indicators and criteria for monitoring the area of Manpower Needs and Career Preparation; issue progress report on the monitoring of Educational Functions, Programs, and Services. (1976)

"6. Issue progress report on the results of monitoring activities during the first year, including recommendations for periodic monitoring, revisions in annual monitoring, and needed in-depth evaluative studies. (1976)

"7. Develop data/indicators and criteria for monitoring the areas of Costs and Resources Available to Finance Postsecondary Education, and Physical Facilities and Their Utilization; issue progress report on the monitoring of Innovations and Other Developments, and Manpower Needs and Career Preparation. (1976)"

## "GUIDELINES FOR EVALUATING
## THE EFFECTIVENESS OF [CALIFORNIA] POSTSECONDARY EDUCATION

### "Overview of the Prospectus for Evaluation

"Evaluation of the effectiveness of California postsecondary education under the auspices of the Commission should involve three major types of activities:

"1. A monitoring of the 'state of the health' of California postsecondary education annually, with both quantitative and descriptive indicators to which a variety of criteria and standards would be applied as part of the evaluative process;

"2. Periodic evaluation (perhaps every five years) of selected aspects of postsecondary education where data are not available routinely and/or which do not require monitoring annually; and

"3. In-depth evaluation studies in areas in which serious problems are encountered in the course of monitoring.

"The prospectus is compatible with and supportive of the planning mode which the Commission adopted in September 1974. Values and goals included in the Commission's five-year plan will serve as one source of criteria to be used in the monitoring process. Criteria and standards which are being developed by various committees of the Commission will also be used where appropriate. Where there is unmet need for criteria to apply to data collected in the monitoring activities, the Committee on evaluation will either develop and recommend criteria to the Commission in its final report or point out the need for such criteria to the Commission. Problems requiring in-depth study should be considered in the annual updating of the Commission's Five-Year Plan.

"The activities in (1) and (2) are also an integral part of the development of the state-level data base which is being planned for inclusion in the comprehensive information system for use by the Commission and other State agencies. Because of this close relationship, it should be possible to begin the monitoring activity in the next budget year with data which are readily available from the segments, and to add to the range of indicators as needed.

### "The Monitoring of the 'State of the Health' of Postsecondary Education

"The following appear to be the major areas in which indicators might be developed in such a way as to provide a kind of barometric reading annually. The examples of indicators which are given do not constitute a proposal for data collection at this time. They were chosen so as to illustrate as clearly as possible the concept of evaluation as a monitoring process, without regard to feasibility of data collection, relative priority, or availability of criteria for use in evaluating the data.

"Costs and Resources Available to Finance Postsecondary Education

"1. Data: costs per full-time equivalent student by level, institution, and segment; Indicators: changes over time, differences among institutions, projected versus actual costs.

"2. Data: Enrollment and application figures, number of student spaces available, costs, other information relating to the financial conditions of independent institutions; Indicators: to be developed by the Ad Hoc Committee on the Financial Conditions of Independent Institutions.

"3. Data: amount of State support per ADA in the Community Colleges; Indicators: changes over time in relation to increased costs, impact of increases in State support appropriated to accomplish designated improvements in program.

"4. Data: expenditures for academic, career, and other types of counseling; placement; student activities; other student personnel services; Indicators: comparative costs per FTE student for various services, annually and over time.

"5. Data: cost per student to reach occupational and career objectives; Indicators: comparative costs for selected programs, by institution, segment, and over time.

"6. Data: salaries for faculty and other personnel in postsecondary education institutions and segments; Indicators: comparative data with other institutions outside California; application of standards and criteria recommended by the Ad Hoc Committee on Methodology for the Annual Faculty Salary Study.

"Access and Admission to Postsecondary Education, Including Student Financial Aid

"1. Data: percentage enrollments of racial/ethnic groups; Indicators: changes over time in relation to access goals; differences among institutions, programs, and segments.

"2. Data: socioeconomic characteristics of enrolled students, including need for and receipt of financial aid; Indicators: distribution of family income by community and region, and statewide; ratio of assessed need to available student financial aid.

"3. Data: percentage enrollments of men and women; Indicators: changes over time, differences among institutions, programs, and segments.

"4. Data: age distribution of postsecondary students; Indicators: differences among institutions, programs, and segments, in relation to differences in functions, goals and objectives, and plans; changes over time.

### "Student Quality and Performance

"1. Data: ability test scores and high school grades of entering freshmen; Indicators: changes over time in relation to projected changes in the student bodies of institutions and segments, for example, increases in the enrollment of disadvantaged students.

"2. Data: enrollments in remedial and precollege courses; Indicators: changes over time in numbers and percentages; pre- and post-test performance on standardized tests of basic skills.

"3. Data: grade-point averages earned by transfer students; Indicators: differentials in averages earned before and after transfer; percentages of transfer students on academic probation; differences among institutions of origin with respect to grade-point differentials.

"4. Data: performance of graduates of postsecondary institutions in graduate and professional schools; Indicators: rates of persistence; time required to complete degree programs.

"5. Data: performance of graduates on licensing examinations; Indicators: percentages passing examinations on first and second tries; changes over time.

### "Manpower Needs and Career Preparation

"1. Data: numbers of students and graduates in critical shortage and overage areas; Indicators: ratios of enrollees and graduates to need by field; trends over time.

"2. Data: placement/employment of graduates; Indicators: numbers of graduates who are employed within six months of graduation in the field of their preparation or a related field; numbers who cannot be placed and who do not seek employment in the field; Indicators: comparisons among fields and types of preparation programs; changes over time.

"3. Data: manpower projections for technical and professional occupations; Indicators: enrollments in relation to projections; institutional and segmental plans for adding and deleting programs.

"4. Data: distribution of enrollments among occupational/career fields by segment, sex, and racial/ethnic group; Indicators: changes over time in relation to segmental plans and State plans for vocational education and manpower development.

### "Educational Functions, Programs, and Services

"1. Data: changes in the functions of segments and institutions; Indicators: congruence with long-range plans of the segments and the Commission.

"2. Data: inventory of programs added and deleted; Indicators: criteria used by the Intersegmental Program Review Council.

"3. Data: number and percentage distribution of degrees and certificates awarded, by field of study, institution, and segment; Indicators: changes over time in relation to institutional and segmental plans; ratios of entering students and graduates by field of study and segment.

"4. Data: inventory of off-campus, extended university, external degree and other types of programs for nontraditional students; Indicators: growth in numbers and types of programs offered by region and statewide; growth in enrollments in relation to increases in numbers of programs.

"Physical Facilities and Their Utilization

"1. Data: inventory of off-campus centers; Indicators: criteria developed by the Ad Hoc Committee to Develop Policies Relating to the Approval of Campuses and Institutions.

"2. Data: arrangements for shared use of facilities within and between segments; Indictors: utilization data in terms of hours, bodies, and functions, by type of facility.

"3. Data: inventory of facilities constructed by the public segments with non-state funds; Indicators: annual growth in enrollments at such centers and campuses; impact on growth in enrollments in state-financed facilities.

"4. Data: cost per square foot for new instructional facilities; Indicators: changes over time in cost; increases in assignable space for instruction produced.

"Innovations and Other Developments

"1. Data: inventory of recently funded innovative projects; Indicators: changes in the amount of funds available from year to year from various sources; distribution of funds for innovation among segments and institutions; also among disciplines.

"2. Data: major findings from completed projects; Indicators: feasibility of generalization to other institutions and segments.

"3. Data: costs per student participant in innovative projects; Indicators: comparative costs with traditional modes; projected costs after developmental, start-up phase of innovative programs.

"Monitoring involves data collection, analysis, and evaluation with respect to the indicators which are selected and the criteria which are to be applied in making judgments about the aspect of postsecondary education which is being evaluated. For example, monitoring may be done in relation to segmental, institutional, and State plans, by finding out from various indicators whether the plans are being implemented so as to produce the desired/anticipated results. As data for indicators become available for two or more years, changes and trends will be monitored so as to identify unanticipated events, for example, a decrease in the percentage of women among the undergraduates in a particular segment or career field.

"Changes and trends may also be monitored to insure that California postsecondary education is moving in directions which are consistent with the statement of long-term values in the Commission's Five-Year Plan, for example, the fostering of diversity of opportunity and the optimizing of the use of resources.

"A major product of the monitoring activity will be the identification of problems for in-depth study in connection with long-range planning. For example, an effective monitoring system would probably have revealed the rather low rate of employment of graduates of certain occupational programs which was found in a recent study of the comparative effectiveness of public and proprietary institutions. The finding of such rates for two or more years would indicate the existence of a problem requiring further study, in the course of which both the quality and appropriateness of the occupational programs and the need for additional manpower in these fields might be examined.

"Periodic Evaluation

"Many indicators of the 'state of the health' of California postsecondary education can be examined on a schedule which is less demanding than an annual inventory. In some instances data are not collected routinely by the segments and institutions, and the imposition of an annual monitoring schedule would not be feasible. In others, changes from year to year are expected to be so slight as to be unproductive for an annual schedule of data collection. A five-year interval appears appropriate for periodic monitoring since the Commission's Plan under the provisions of Assembly Bill 770 [Chapter 1187, Statutes of 1973] will be for a five-year period, with an annual updating.

"The National Assessment Project in the public schools provides one model for periodic evaluation. The Project involves the evaluation of the performance of public school students by means of standardized tests over a period of years. Instead of an annual testing of all students in all subjects, students at particular grade levels are tested in selected subjects at five-year intervals, with different grades tested each year. The prospectus for state-level evaluation by the Commission proposes data collection relating to selected indicators at five-year intervals, perhaps utilizing a different sample of institutions each year.

"A few examples of areas which appear appropriate for periodic monitoring are:

"1. Analysis of high school graduates to find out the percentages which are eligible to attend various types of institutions, by sex, racial/ethnic background, and socioeconomic status; also a follow-up study to find patterns of attendance by group characteristics;

"2. Follow-up study of graduates of postsecondary institutions to find out their attributes at the time of graduation, admission to graduate and professional schools, job placement, and other indicators of success;

"3. The effectiveness of high school and other counseling on student choices of institution, program, and career field in postsecondary education;

"4. Inventory of facilities and utilization of space at the campus level in relation to utilization standards adopted by the State;

"5. Review of high cost and other selected educational programs;

"6. Survey of grades and grading practices;

"7. Student persistence in courses and programs.

"In-Depth Evaluation Studies

"Some aspects of postsecondary education will require in-depth evaluation, probably on a one-time basis, leading to the recommendation of possible courses of action to be included in the Commission's updated five-year plan. Examples of evaluation studies which might be undertaken as a result of monitoring activities are:

"1. Evaluation of opportunities for adult and continuing education offered under various auspices, including problems of duplication and different levels of funding;

"2. Evaluation of student outcomes in terms of the multiple adult roles ('the whole man') which graduates are expected to perform in society;

"3. Evaluation in career education, including assistance in making informed choices, manpower projections in relation to planning, and the need for continuing education for recertification.

"Final Notes

"The examples given under each of the three aspects of evaluation do not constitute a proposal for action at this time. Instead, an attempt has been made to develop a prospectus for state-level evaluation by the Commission which involves several types of evaluation activities which would be carried on concurrently, namely, the annual monitoring of the status of postsecondary education, periodic evaluation in areas in which annual monitoring is unnecessary or infeasible, or both, and in-depth evaluation in problem areas uncovered in the course of annual monitoring.

"The approach is recommended on the basis of feasibility of accomplishment by current staff, availability of data collected routinely for the monitoring activity, applicability of standards and criteria being developed by the Commission for other functions, and probability of producing results which will be useful to the Commission in its planning and coordination functions, and to other State agencies and the Legislature."

# APPENDIX O

## SELECTED MATERIALS FROM UNIVERSITY OF CALIFORNIA PLANNING DOCUMENTS[1]

### EXAMPLE OF STATEMENTS OF OBJECTIVES

"Flexibility and Long-term Commitments

"The University commits most of its resources on a long-term basis, in tenure appointments for faculty and in regular support for long-established on-going programs. These long-term commitments are essential to the steady development of the institution and the achievement of a high level of quality. The University finds it equally important, however, to maintain sufficient flexibility for the introduction of new academic areas and faculty trained in those areas, for new responses to student demand and societal need, and for the phasing out of programs whose academic priorities have fallen over time.

"The rapid growth which marked the 1960s gave the University flexibility to bring in a number of young faculty members and to add important new programs and even new campuses with a diversity of organizational and instructional approaches. But the University cannot look to growth as the primary source of flexibility in the 1970s. The answer now lies in the most thoughtful planning for the use of faculty and other resources to keep the University a dynamic, creative institution during the slow-growth or no-growth years ahead.

"Some flexibility over the longer run is achieved by institutional readiness to re-examine academic programs periodically and to reduce or eliminate programs whose priorities are now found to be lower than those of new programs awaiting funding. In a period of rapid growth, new programs can usually be funded out of new monies and so there is not as much urgency and pressure to pursue all of the possibilities of reallocation. One advantage of a slow-growth period is that it forces a healthy and vigorous review and reassessment of long-established programs.

> *"The University will continue its on-going series of program reviews, at both the campus and Universitywide levels, as a major means of maintaining flexibility and vitality in its academic programs.*
>
> "Descriptions of some recent and current program reviews will be found in the second part of this section.

"With the very tight budgets that have resulted from the past several years of fiscal stringency, campuses urgently need some means of short-term flexibility to meet abrupt enrollment shifts and other unforeseen contingencies and to be able to respond to sudden academic opportunities of unusual promise. The office of the President currently provides a fund which is allocated annually to the campuses (roughly in relation to their size) for such contingency purposes. Campuses may use these monies only for temporary, one-year commitments, and the funds are subject to recall by the President's Office at the year's end for reallocation among the campuses on reassessment of temporary needs. In addition to these Universitywide funds, local campus funds have been established for similar short-term use to provide greater intracampus flexibility.

> *"The office of the President and the campuses will develop further the existing policy of reserving appropriate portions of total available resources for temporary allocation according to need, in order to provide essential margins of short-term flexibility in the support of academic programs. This will be continued to the end that, whatever contingencies may arise, the University will be able to insure the uninterrupted influx of new faculty talent, the development of new academic programs, and the maintenance of an appropriate balance of resources among and within the campuses.*

"Perhaps the most important way of assuring freshness and flexibility in the University of California is through faculty renewal. It is essential that an adequate flow of new faculty members be brought into the institution to assure the continuing introduction of new academic ideas and the capacity to deal with new fields as well as with old fields in new ways. In a slow-growth or no-growth period, the problem of maintaining this flow becomes acute. During the current round of academic planning, the subject of faculty renewal (renewal both in institutional terms of the faculty as a whole and in terms of preparing individual faculty members to meet new needs) has received extensive study. Each campus was asked to develop specific programs to assure faculty renewal within its major academic units, and these programs are described in the Campus Academic Plans. At the same time, the central University administration has taken other steps to enlarge the opportunities throughout the University for faculty renewal.

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[1] Sources of information: Charles J. Hitch, University of California Academic Plan, Phase II: Campus Academic Plans - Volume I: The University-wide Perspective, (Berkeley, California: March 1975).

> *"The Office of the President will improve and expedite, as necessary or useful, existing procedures for early retirement and intercampus transfer of faculty. Special leaves in addition to sabbatical leaves to enable present faculty members to enhance their ability to contribute to changing academic areas will be encouraged, and the Office of the President will seek to provide supplemental funds (within budget limitations) to facilitate such leaves.*

"Some measures of faculty renewal can be achieved through the broader exchange of faculty among campuses, either temporarily or on a permanent basis. Replacements for sabbatical leaves, for example, might be recruited from other campuses providing opportunities both for bringing new faculty talent and outlooks to a campus and giving individual faculty members the opportunity for self-renewal through new teaching and research opportunities in a new campus context. Such a practice should not, of course, be carried to the point of making the University provincial or too inward looking. Some faculty vacancies are needed to provide opportunities for bringing in prospective new faculty members on a trial basis.

> *"Whenever it will serve the purposes of faculty renewal, either individual or collective, academic units are encouraged to begin recruiting for visiting and permanent appointments by looking for suitable candidates within the University.*

"In staffing their programs during the slow-growth years just ahead, academic units will need to be alert to opportunities for making temporary appointments. Broader use may need to be made of visiting and postdoctoral scholars. This is especially important for departments that have unusually heavy total instructional loads because of the extensive use made of their courses as breadth or required service courses for students from other departments. The use of permanent ladder faculty to meet the entire instructional needs of such departments would result in total long-term faculty commitments out of proportion to the actual size of the discipline and foreclose opportunities for faculty renewal. It is important, however, that temporary staff not be concentrated at the undergraduate instructional level, depriving undergraduates of the opportunity for contact with senior faculty members in these departments.

> *"Academic units should consider the optimum staffing mix of ladder faculty, postdoctoral scholars and other temporary appointments in order to maintain flexibility while meeting total instructional requirements. Regardless of total staffing mix, ladder faculty will continue to have responsibilities for teaching both undergraduate and graduate students.*

"The University is currently seeking to meet its obligations to add more women and more minorities to its faculty. Since recruiting possibilities are limited during this slow-growth period, it is important that sufficient faculty renewal measures be provided to create opportunities for affirmative action.

> *"The University will utilize faculty renewal activities to expand opportunities for meeting its affirmative action responsibilities.*

"Although review of the Campus Academic Plans did not specifically elicit concern about flexibility in physical facilities, it is clearly evident that, as the growth rate declines, great emphasis must be placed on providing for the maximum flexibility in any future space constructed on the campuses; therefore,

> *"In reviewing capital project proposals, an important criterion will be the degree to which the proposed structures can serve multiple needs as well as the needs of the planned initial occupants. Of course, some structures have highly specialized functions and in those cases the stated criterion cannot apply. Attention will be given to the flexibility of existing campus space when applying this criterion to planned additional structures."*

# APPENDIX P

# SELECTED MATERIALS FROM CALIFORNIA STATE UNIVERSITIES AND COLLEGES PLANNING DOCUMENT[1]

## "RESOURCE REQUIREMENTS AND CURRICULAR PLANNING

"In addressing the resource implications of enrollment redistributions and of the new programs projected on the Academic Master Plans, the following assumptions are of key importance:

"1. Budgeting for faculty and facilities is directed primarily to meeting total enrollment demand, as projected in Table 1.

"2. Within that enrollment total, resource requirements are of varying types which differ primarily in terms of *instructional mode* (lecture or lab mode for example), and *instructional level* (lower, upper and graduate division). Variations in the mix of instructional mode and level can be identified with individual subject areas. Table III shows how different mixes in instructional modes result in variations, by discipline area, in the Student Credit Units produced by each Full-Time Equivalent Faculty. Variations caused by different mixes in level of instruction are already incorporated into the SCU/FTEF ratios shown.

"3. Changes in the needed level of support per FTES on each campus and in the system are attributable to changes in the total "mix" of instructional mode and level.

"These observations imply that the *"cost" of implementing a new program is the same as the "cost" of increasing enrollment in an existing program of the same instructional mode and level mix.* While the causes for enrollment redistributions are thus different, one being essentially student initiated and the other (new programs) being essentially campus initiated, the effects are the same for resource purposes. Consequently, projections of enrollment distribution used for faculty staffing and facilities planning combined assumptions about enrollment redistributions caused by changing patterns of student enrollment and those redistributions likely to be caused by new programs.

"To ascertain the impact of these enrollment redistributions on campus resource requirements, the projections of enrollment for each discipline can be broken down by instructional mode and level. The overall "mix" and consequent faculty requirements can then be ascertained by totaling enrollments by level and mode for the campus. Since differences in "mix" can be identified with the individual discipline areas, a similar projection can be made by applying discipline SCU/FTEF ratios to discipline enrollment projections to ascertain faculty positions. For facilities planning, the projections of enrollment by discipline are applied to facilities utilization standards, as described in the budgeting section in the following pages. Those utilization standards are also defined by discipline area, recognizing the differences in mode and level mix commonly associated with individual discipline areas.

"The concerns which are now being expressed about the system's ability to accommodate enrollment redistributions in a slow or no growth situation - regardless of the reasons for them - relate in part to the nature of those shifts. Many of the shifts in enrollments are into disciplines which are composed of instructional modes characterized by ratios lower than the overall ratios for which the campuses are budgeted. In other words, the trade-off required in faculty positions, and often in facilities, is more than one for one. Using the systemwide SCU/FTEF ratio, if 23 Full-Time Equivalent Students (339 Student Credit Units) transfer from Social Science courses to Nursing courses, one faculty position could be released from Social Science but Nursing would require 3.2 new faculty positions to instruct the same 23 FTE students, creating a net deficit of 2.2 faculty positions. The effect would be the same whether Nursing were a new program or an existing, growing one.

"For purposes of determining faculty and facilities need, the campuses project the expected discipline distributions of FTE enrollments for the coming budget year (for faculty staffing) and for five and seven years in advance (for facilities planning). For most campuses in the the system, the overall enrollment allocations have been revised downward from previous forecasts. This has several effects even before the factors of mode and level are applied to the projections.

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[1] Source of information is: Office of the Chancellor - Division of Education Programs and Resources, Academic Program and Resource Planning in the California State University and Colleges - 1976-77 through 1980-81, (Los Angeles, California: ERIC microfiche copies available, April 1976).

"First, while subject area enrollment distributions have always fluctuated, projected drops in percentages did not usually mean actual drops in FTE enrollment when the total enrollment was growing. In a slow or no growth situation, this is no longer the case; percentage drops become absolute FTE declines. Consequently, when enrollment anticipated to accrue to a new subject area is projected, some other existing subject area must actually decline in FTE. This is one of the reasons that campuses are currently reviewing the number and size of projected programs. One consequence of implementing new programs (if they involve new courses) will be enrollment declines in other subjects if total enrollment is not growing.

"The actual resource implications of new programs can be projected by estimating what enrollment distributions might be with the new programs and what they might be without them. With total enrollment projected to be the same in either case, the resource differences involved in implementing planned programs and not implementing them can be observed by comparing the two resulting sets of resource elements.

"Table XIV demonstrates the effects of redistributions caused by changes in student demand (columns 5-6) and changes in student demand combined with the effects of new programs (columns 8-9). The distributions are projected for a model campus currently enrolling 12,000 FTE (180,000 SCU) which is projected to enroll 13,000 FTE (195,000 SCU) in five years. Columns 5 and 6 project changes in enrollment distributions based primarily on current enrollment trends. Columns 8 and 9 combine these redistributions with those which might result from the following hypothetical set of new programs:

"BA Human Services
"BA Environmental Studies
"MA Counseling
"MA Computer Science
"MPA Public Administration

TABLE XIV

"SAMPLE DISTRIBUTION OF STUDENT CREDIT UNITS AND FULL-TIME EQUIVALENT FACULTY WITH AND WITHOUT NEW PROGRAMS

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Existing | | | SCU/ FTEF | Five Years Later Without New Programs | | | Five Years Later With New Programs | | |
| DISCIPLINE CATEGORY* | SCU | % | FTEF | RATIO | SCU | % | FTEF | SCU | % | FTEF |
| Agriculture and Natural Resources | | | | | | | | | | |
| Architecture and Environmental Design | | | | | | | | | | |
| Area Studies | 540 | .3 | 1.5 | 353 | 390 | .2 | 1.1 | 390 | .2 | 1.1 |
| Biological Sciences | 9,360 | 5.2 | 34.7 | 270 | 12,675 | 6.5 | 46.9 | 12,870 | 6.6 | 47.7 |
| Business and Management | 17,100 | 9.5 | 51.5 | 332 | 21,840 | 11.2 | 65.8 | 21,450 | 11.0 | 63.7 |
| Communications | 3,240 | 1.8 | 10.9 | 298 | 3,510 | 1.8 | 11.8 | 3,510 | 1.8 | 11.8 |
| Computer and Information Sciences | 900 | .5 | 4.0 | 225 | 1,950 | 1.0 | 8.7 | 2,340 | 1.2 | 10.4 |
| Education | 13,680 | 7.6 | 60.0 | 228 | 11,895 | 6.1 | 52.2 | 12,285 | 6.3 | 53.9 |
| Physical Education | 6,840 | 3.8 | 30.8 | 222 | 7,215 | 3.7 | 32.5 | 7,215 | 3.7 | 32.5 |
| Industrial Education | 2,340 | 1.3 | 10.7 | 218 | 2,925 | 1.5 | 13.4 | 2,925 | 1.5 | 13.4 |
| Engineering | 5,220 | 2.9 | 30.0 | 174 | 6,240 | 3.2 | 35.8 | 6,045 | 3.1 | 34.7 |
| Fine and Applied Arts | 13,680 | 7.6 | 62.0 | 220 | 13,650 | 7.0 | 62.0 | 13,650 | 7.0 | 62.0 |
| Foreign Languages | 5,220 | 2.9 | 21.2 | 246 | 4,680 | 2.4 | 19.0 | 4,680 | 2.4 | 19.0 |
| Health Professions | 3,420 | 1.9 | 11.0 | 311 | 5,850 | 3.0 | 18.8 | 5,850 | 3.0 | 18.8 |
| Nursing | 1,440 | .8 | 13.3 | 108 | 1,950 | 1.0 | 18.1 | 1,950 | 1.0 | 18.1 |
| Home Economics | 1,800 | 1.0 | 6.0 | 301 | 1,950 | 1.0 | 6.5 | 1,950 | 1.0 | 6.5 |
| Letters | 19,800 | 11.0 | 67.3 | 294 | 17,745 | 9.1 | 60.3 | 17,745 | 9.1 | 60.3 |
| Library Science | | | | | | | | | | |
| Mathematics | 8,460 | 4.7 | 30.5 | 277 | 9,555 | 4.9 | 34.5 | 9,555 | 4.9 | 34.5 |
| Military Science | | | | | | | | | | |
| Physical Sciences | 10,440 | 5.8 | 40.9 | 255 | 11,700 | 6.0 | 45.9 | 11,700 | 6.0 | 45.9 |
| Psychology | 10,080 | 5.6 | 29.6 | 341 | 10,140 | 5.2 | 29.7 | 10,140 | 5.2 | 29.7 |
| Public Affairs and Services | 5,760 | 3.2 | 18.9 | 305 | 7,650 | 3.9 | 25.1 | 9,555 | 4.9 | 31.3 |
| Social Sciences | 38,160 | 21.2 | 112.6 | 339 | 37,245 | 19.1 | 109.9 | 34,515 | 17.7 | 101.8 |
| Interdisciplinary Studies | 2,520 | 1.4 | 9.0 | 281 | 4,290 | 2.2 | 15.3 | 4,680 | 2.4 | 16.6 |
| TOTAL | 180,000 | | 656.3 | 274.3 | 195,000 | | 713.3 | 195,000 | | 713.7 |
| SCU/FTEF RATIO | | | | 274.3 | | | 273.3 | | | 273.2 |

"Column 4 shows existing SCU/FTEF ratios by discipline area. Projections of Full-Time Equivalent Faculty in columns 7 and 10 are based on the assumption that these ratios will be retained. (A more accurate and sophisticated model would project slightly different ratios based on anticipated changes in level of instruction and on a set of planned student faculty ratios, rather than historical ratios which may reflect temporary conditions of under- or over-enrollment in various disciplines).

"The table indicates how changes in enrollment distribution by discipline area combine to change the *overall* SCU/FTEF ratio even though no changes in ratio are projected for any discipline. It also shows that new programs can influence the overall ratio in either direction, depending on the ratios in disciplines where enrollment would accrue.

"These changes in overall student-faculty or SCU/FTEF ratios, while influencing the system's faculty request, may not necessarily be supported through resources provided by the State. In recent years, while there have been changes in enrollment distributions which would appear to require lower student faculty ratios, budgeted ratios have not been substantially changed. When this occurs, there are several possible institutional responses.

"1. Enrollment redistributions can be controlled. For existing programs, this is done through the application of enrollment quotas. Redistributions which would have resulted from new programs are controlled by not implementing those programs. Both measures could have the effect of hastening overall enrollment declines.

"2. Upward adjustments in student faculty ratios can be made wherever possible to allow for some enrollment redistributions.

"3. Instruction in some subjects can be discontinued so that faculty positions can be used to accommodate enrollment growth elsewhere.

### "Assumptions About the Impact of New Programs on Total Enrollment Allocations

"The sample projections of enrollment redistributions contain one assumption which results in the total number of faculty positions being very similar for projected faculty needs with and without new programs. That assumption is that for the model campus shown, the new programs would not add to the total enrollment figure.

"Since budgeting is directed to providing for the total number of full-time equivalent students, the question of whether new programs generate new enrollments then becomes important in discussing the resource implications of new programs and the extent to which they may influence the enrollment base on which the system is budgeted.

"Enrollment allocations are based on the three factors described on page 2. The effects of new programs vary among these factors:

"1. Demographic projections (population), while constituting the major element in enrollment projections, are obviously unrelated to new programs.

"2. Average student load, the factor used to convert projections of individuals into projections of full-time equivalent students, is not closely related to new programs. It could however be influenced by the development of programs explicitly designed for part-time students, or a new emphasis on part-time students in existing programs.

"3. Participation rate is that element of the enrollment allocation which new programs would effect, if indeed they do influence the enrollment allocation. There are, however, many other known factors which influence participation rates. If these other factors were constant, those programs which attracted students who would otherwise not have attended college (new clienteles) would cause an increase in participation rate.

"Since the various factors influencing participation rate cannot be isolated, it is not known how much of a role new programs have played in its increase over the past years. This role, whatever it may be, is built in to future enrollment allocations to the extent that they are based on actual trends which occurred in the past. Some assumptions can be made about what these effects have been and what they may be in the future.

"First, there are different types of programs; some attract students who would not otherwise have attended the campus and some provide students who would have attended anyway with a greater variety of choices. Second, the proportions between these two types of students probably differ in accordance with campus maturity. A campus just initiating master's degree programs, for example, obviously draws from a new clientele. The addition of a new program or programs at a campus already offering a broad range of subjects probably has the effect of redistributing enrollments. This is because after a full complement of programs exists, most new programs - while designed for specific purposes - have some overlapping features with other existing programs. A new Public Administration degree for example, will probably draw some students who would otherwise have majored in Business Administration or Political Science. Experience data exists to confirm this assumption. The leveling off in participation rates after a long period of increase in the system may - if this assumption is correct - be attributable in part to the increasing maturity of the system's campuses. It might also suggest, particularly for the larger campuses, that the only new programs which might appreciably add to total enrollment would be those specifically directed to new clienteles - older age groups, for example, or individuals who have not had access to a nearby campus and can now participate through the external degree mode. One known reason for the recent leveling off in participation rate is a drop in the proportion of Community College students who transfer into the system. Since Community College transfer students constitute the single largest source of entering students in the system, this might suggest that new programs articulated with specific Community College offerings might similarly influence participation rates and consequently have some effect on total enrollment.

"For most new programs, however, it is not anticipated that implementation will cause total campus enrollments - and consequently the base for budgeting - to increase. It is likely that enrollment redistributions will be caused within the fixed total, often into higher cost disciplines. Clearly there will be entirely new areas of need and subject matter where this will not be the case, but for the majority of new programs, the key resource question will be the probable impact on enrollment distribution at the campus as a whole.

### "Maintaining Program Flexibility through the Review of Existing Programs

"One way of maintaining the ability to meet new program needs is through the restructuring and updating of existing programs, and through the redistribution of allocated resources from existing programs to new programs. With some modifications, the procedures of program performance review, in conjunction with academic master planning and degree review and approval, can serve this function.

"The efficient operation of existing programs will be a critical element in the maintenance of program flexibility, and indeed, the performance review of existing programs originated primarily as an efficiency measure. First, House Resolution 376, 1969 Session of the Legislature, directed the Coordinating Council for Higher Education to undertake a study of highly expensive, limited-use academic programs and facilities at strategic locations in the public segments of higher education in California. This resulted in two Council reports. The first, adopted in 1969, was entitled *Survey of Educational Offerings and Academic Plans with a Consideration of Higher Cost Programs: A First Report*. The final report, *Higher Cost Programs in Public Higher Education*, was approved by the Council in March 1971. While both studies focused primarily on limiting planned programs, one recommendation of the second study called for the three segments of higher education to develop policies and/or guidelines on measures of program activity and productivity by September 1971. In connection with the study entitled *Guidelines for Increasing Efficiency in Graduate Education*, the Coordinating Council also approved in March 1971 a resolution advising The California State University and Colleges and the University of California that 'Each current program leading to a graduate degree or a credential should be reviewed periodically at intervals of from five to ten years in order to ascertain what is needed both to maintain and improve quality, and whether or not the program has sufficient priority of demand upon resources to warrant its continuance.

"In 1971, the Board of Trustees called for the establishment of performance review procedures for all existing undergraduate and graduate programs, and since that time, the Trustees have annually resolved 'that a formal review of existing degree curricula continue to be conducted annually by the campuses as a part of the overall academic planning process.' The campuses were requested to establish procedures whereby all programs would be reviewed in qualitative and quantitative terms over a five-year period. Summary reports on the annual review are required each year by the Trustees as part of the Academic Master Plan submission.

"In a slow or no growth period, efficiency in the offering of programs is all the more critical, and because of some resource imbalances which could occur, the periodic review of qualitative factors is also essential. The review procedures already established, in which the Chancellor's Office monitors systemwide developments and each campus is responsible for the periodic review of every program, should serve the following functions:

- "The capabilities of existing programs to meet new needs - whether by updating or by combining in new interdisciplinary formats - can be periodically assessed;
- "Where appropriate, curricular revisions and modifications can be made in existing programs;
- "Information on enrollment trends can be examined term by term at the systemwide level and made available to the campuses at an early stage;
- "Areas where enrollment declines are occurring can be identified and enrollment redistributions planned;
- "Methods for increasing efficiency or improving quality in individual programs can be explored;
- "Appropriate adjustments can be made in programs where resources are not being used efficiently;
- "Campus administrators will have more information on which to base decisions involving priorities among existing and projected programs.

"In effect, then, the established procedures of Academic Master Planning, degree review and approval, and program performance review will continue to provide a framework within which to develop and maintain programs. Some operational changes in these procedures may be anticipated, particularly with regard to planning of the directions of existing programs and the impact of these plans upon projected programs.

"The California State University and Colleges responded to the request for guidelines by devising five productivity measures which would be used to identify programs for further review:

"1. Average FTE per section, by discipline and level of instruction, in order to measure course proliferation within a discipline;

"2. Number and percent of sections in each discipline which fall below minimum class size standards used for budgetary purposes, thus identifying the incidence of low-enrollment courses within a discipline;

"3. Frequency distribution in each discipline, of section sizes within each staffing formula category, as a measure of efficiency, thus identifying the incidence of courses in a discipline which may meet class size minima but do not meet optimal standards;

"4. Student faculty ratio, by discipline and level of instruction, as a measure of cost; and

"5. Degrees granted in each degree program over a period of several years, as a measure of productivity."

## APPENDIX Q

## COLLECTIVE BARGAINING AND FINANCIAL PLANNING[1]

This appendix examines the mutual impacts of collective bargaining and financial planning in universities and public colleges in Alberta. Study of the relationship between collective bargaining and financial planning is required, because, agreements between faculty associations and boards of governors include not only salary and fringe benefit provisions, but increasingly also include clauses relating to hours, type of work, (teaching and research), number of students in classes, number of preparations and other responsibilities. These clauses have direct financial planning implications. While this discussion of collective bargaining centres on faculty collective bargaining, one must remember that non-academic staff bargain collectively and this may also impact financial planning of institutions and the advanced education system.

A financial plan may circumscribe free collective bargaining by establishing limits to the terms and conditions of employment. While faculty members may be willing to accept external constraints on the collective bargaining process, at this time, one should not discount the probability that in the future such constraints may lead to a more militant and less responsible faculty. (This does not imply that as faculty members become more militant that they necessarily become less responsible.)

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[1] Martin S. Serediak, Mount Royal College and past President Alberta Association of College Faculties, did the research and prepared a draft document on collective bargaining which was necessary for this Appendix. We [illegible]tefully acknowledge his assistance.

Since postsecondary institutions are not managed in a hierarchal manner, the possibility of a more militant faculty takes on great significance. The possibility exists that faculty associations will bargain on issues that are not explicitly monetary and that they will want an increased share of authority. What are the consequences of one partner in shared authority being uncooperative? Collective bargaining is concerned with the fundamental issue of 'who has the power'.[1] Traditional views on the decision-making process are undergoing change. What impact will such change have on financial planning?

Faculty collective bargaining and financial planning in Alberta postsecondary institutions will be studied from the following shared perspectives:

1) Legal issues
2) Education decision-making issues
3) Economic issues

## A. Legal Issues

Collective bargaining in higher education is relatively new in North America. The major thrust has been in the last few years and there is evidence that university and college faculties will engage in more collective negociations.[1] It is outside the scope of this project to examine in detail the reasons faculties seek bargaining rights. However, the motivation has included the need for better security, better pay and working conditions and access to fair and impartial grievance handling.[2]

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[1] Since power may not be finite, more and more people may be able to influence decisions and participate in them. One group may still have dominant influence and this may mean that the others will want to examine how they can better influence the decisions of the group.

In Alberta, faculty members in all public colleges and universities except Athabasca University engage in some form of bargaining with their employer.[3] No faculty associations are certified collective bargaining agents under the Alberta Labour Act. The university faculty associations are voluntarily recognized by the respective board of governors, while college faculty associations fall under the Colleges Act[4] which allows for collective bargaining. Both the Confederation of Alberta Faculty Associations (CAFA) and the Alberta Association of College Faculties (AACF) have petitioned the Minister of Advanced Education and Manpower to guarantee that no legislative changes should preclude the possibility of university and college faculty bargaining under the Alberta Labour Act.

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[1] See for example - "Collective Bargaining in Postsecondary Education Institutions, Applications and Alternatives in the Formulation of Enabling Legislation", A Resource Handbook, Education Commission of the States, Report No. 45, (Denver, Colorado, March 1974); Canadian Association of University Teachers Bulletin, Volume 23, No. 3, December 1974; Many recent issues of CAUT Bulletin, have had information on collective bargaining for university faculties.

[2] William B. Boyd, "Collective Bargaining in Academe: Causes and Consequences", Liberal Education, Volume 57, No. 3, October 1971.

[3] The Public College Faculties under the Alberta Association of College Faculties (AACF) and the faculty members at the universities under the Confederation of Alberta Faculty Associations (CAFA) and the Canadian Association of University Teachers (CAUT), along with the Alberta Teachers Association (ATA) and the Alberta Association of Writer Educators and Performer Educators, are party to a collective agreement with ACCESS. This agreement governs the terms and conditions of those members who are engaged as writers or performers for educational television or radio in the province.

[4] The Revised Statutes of Alberta, 1970, Chapter 56, with amendment up to and including June 6, 1974.

### a. Three Directions of Collective Bargaining

Charles Ping describes three distinct approaches to collective bargaining. To the extent these exist in Alberta's postsecondary educational institutions, they serve as indications of the direction that collective bargaining may be going. Ping notes:

> ... *limited bargaining*, involves agreement on the economic issues of wages and fringe benefits and on union status. The second approach [*compensation/procedures bargaining*] adds bargaining on processes, including procedures governing personnel decisions or reappointment, promotion, and tenure and grievance procedures... a third approach, *comprehensive bargaining*, ... campus governmental structures and processes concerned with the substance of academic judgements are added to economic and procedural determination.[1]

It would appear that bargaining in most Alberta institutions is somewhere between approaches two and three.

### b. Full Collective Bargaining Rights

Full collective bargaining rights have been extended to many universities and colleges.[2] The notable features of full collective bargaining in Canada are:

1) The academic staff association is the exclusive bargaining agent for faculty

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[1] Charles J. Ping, "Unionization and Institutional Planning", Educational Record, Vol. 54, No. 2, Spring 1973, p. 100. [italics added].

[2] See Appendix C for a review of collective bargaining in colleges and universities across Canada.

2) The boards of governors or their representatives and the faculty associations or their representatives meet and bargain in good faith in an attempt to reach an agreement

3) Should the bargaining fail to reach an agreement then the issues are taken to an outside body, a conciliation officer

4) The conciliation officer attempts to mediate the dispute and effect a settlement. If the officer is unable to bring about an agreement, a conciliation board consisting of a representative of the faculty association, a representative of the board of governors and a chairperson agreeable to both sides may be recommended

5) By hearing representation from the two parties, mediating and encouraging them to make a settlement, a conciliation officer or a conciliation board if one was required shall render an award

6) The award is voted on by the two parties. Should either party not accept the award and the current collective agreement has expired, then either party may exert full economic sanctions after a cooling off period and the giving of notice of their intent to strike by the association or lock out the employees by the board.

The above establishes the formal technical bargaining relationship between a board and a faculty association operating under full collective bargaining.

Not all institutions in Alberta operate under full collective bargaining. Some institutions have embarked on a non-strike type of bargaining relationship; for example, one college and one university currently use a form of bargaining known as final offer selection or forced choice arbitration. Other colleges use a method of settling disputes called compulsory arbitration.[1] Finally, in our current study of mutual impacts, it is well to emphasize that collective bargaining is a long-term working relationship between the board of governors and the faculty association. Ping suggests:

> ... agreements governing compensation and working conditions decides the future shape of the university. While a contract runs for a limited time, its consequences for the future of the academic program and university services extend beyond the contract period. Access to education, student-faculty ratios, instructional methodology, financial aid, student services, equipment, library holdings -- all reflect resource allocations potentially determined by bargaining agreements.[2]

c. Three Stages of Collective Bargaining

There may be stages in the evolution of a bargaining relationship between a board of governors and the respective faculty associations over time.[3] The impact of collective bargaining on financial planning differs depending on the sophistication with which two parties engage in the bargaining process. Three stages of the bargaining relationship are:

1) Nativity
2) Adolescence
3) Maturity

These stages characterize the dynamics that collective bargaining often takes in establishing working relationships between boards of governors and faculty association. According to Carleton[1], when faculty associations first seek bargaining rights for their members, the professoriate have feelings of guilt, and boards of governors are often in a state of shock, feeling betrayed by their faithful servants. This stage only lasts for the initial period of negotiation. Soon the two parties reach adolescence, which is the period in the growth of the negotiations process that may be the most destructive of institutional working relationships. A number of universities and colleges in Canada are currently at this stage or have spent considerable time passing through it. The adolescent stage is characterized as 'the balance of terror'. It establishes the we/they relationship. Both parties are accused of intransigence; faculty members are characterized as being indignant and governors as being hardheaded.

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[1] M.S. Serediak and M.V. Roberts, "Collective Bargaining in Alberta Colleges", CAUT Bulletin, Volume 23, No. 3, December 1974.

[2] Charles J. Ping, "Unionization and Institutional Planning", p. 101.

[3] Patrick W. Carleton, "Social and Attitudinal Correlates of Collective Negotiations in Education", Industrial Relations Society Journal, I, Winter 1969, pp. 33-34.

The we/they relationship in the final or mature stage becomes one of mutual recognition, without the destructive characteristics of the prior stage. The mature stage of board/association relationship is accommodative, a sharing of concern often called integrative bargaining. At this stage boards and associations recognize common goals, share information and objectives and recognize each others integrity.

### 1. Nativity Stage

In a nativity stage, financial planning may be viewed from both sides as a means of providing information for collective bargaining. Financial planning may require establishment of a data base which would also provide important information for collective bargaining and may substantiate a board's arguments regarding an institution's ability to pay. As the building of distrust (common at this initial stage) develops, the costs of collective bargaining may increase for an institution in the form of the organization needed to support collective bargaining. There may be an expanded role for the personnel administration office. Bucklew suggests that the first pattern of change will be evolutionary, which is due to the expanded responsibilities that will be required of the office, while the second pattern of change will represent "... a series of progressively firmer administrative forms of co-ordination and centralization."[1] The expanded responsibilities that the personnel office of an institution may have are:

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[1] Ibid.

1) Maintenance of demographic information on all employees in the institution.

2) Staff assistance for collective bargaining, contract administration and grievance handling.

3) Coordination of functions and interests in such areas as Human Rights Legislation, Workman's Compensation, Unemployment Insurance, Canada Pension Plan and Institution-wide fringe benefits.

4) Recommendation of academic personnel policies and administration of such policies as may be decided.

As personnel policies for academic staff and non-academic staff become similar, increased coordination of policies and decisions may result in a single personnel office. Collective bargaining will result in direct costs, such as those associated with the time required for preparation of collective bargaining data and the evaluation of contractual proposals. There may be a requirement for an administrative office to spend time in preparation and bargaining and in the administration of the collective agreement. The exact increase depends on the degree to which postsecondary institutions are already providing the services and the sophistication of the collective bargaining techniques. Thus, in the nativity stage, boards may view financial planning as a method of demonstrating the rationale and legitimacy of responses to faculty demands. Faculty associations on the other hand, may view financial planning as a preemptive maneuver ensuring that they will not be able to achieve their goals.

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[1] Neil S. Bucklew, "The Expanding Role of University Personnel Administration", Journal of the College and University Personnel Association, Vol. 24, No. 4, September 1973, p. 30.

### 2. Adolescent Stage

In the adolescent stage, financial planning may still be viewed with distrust. In this stage, the faculty bargaining agent will not fully participate in any institutional financial planning that occurs. If the institutional management takes a "hard-line approach" to collective bargaining, they could insist that financial plans not be reviewed and approved through academic councils but rather that the planning process be used to affect the cost of settlement, to examine such things as how hard faculty are working, comparison of faculty workloads, etc. All of these items at this adolescent stage could pose a threat to the individual faculty member.

### 3. Maturity Stage

In the maturity stage the parties to the process work towards common goals and agree that the best information must be made available and shared.

Information on budgets, impact of salary increases and fringe benefit changes are provided to both parties. Discussions on the accuracy of the information are minimal, since both parties have a hand in the formulation of the budget. As Charles Ping in his article 'Unionization and Institutional Planning' suggests:

> Long-range fiscal projection and planning are essential to both institutional response to union demands and to institutional planning, since both represent future-oriented decision-making processes. Those involved in institutional decision making must have basic information and understand anticipated resources. Since higher education is not self-supporting, it is imperative that in bargaining both sides have this information and understanding. Sharing information is a necessary part of this process, but beyond that, a functional understanding of the complexities of financing higher education is required by both parties.[1]

This does not mean that collective bargaining does not occur, but it is done with sincerity and a mutual regard for the implication of the collective agreement.

## B. Education Decision-making Issues

The collective bargaining process may eventually lead to changes in the traditional relationship between the professoriate, the administration and the board of governors. We know that:

> ... planning activity in higher education--describing program objectives, planning courses of action, proposing change, evaluating-- is essentially disbursed throughout the academic community .... While consultation with and critique by faculty are basic to informed decision making and

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[1] Charles J. Ping, "Unionization and Institutional Planning", Educational Record, Vol. 54, No. 2, (Spring 1973), p. 103.

> accountability to the community is essential to acceptance, decision making as a whole involves review and determination by administrators, governing boards, and, in public institutions, state agencies.[1]

To the extent that financial planning traditionally has been undertaken within the sphere of administrative decision where efficiency criteria may take precedence over what faculty believe to be education criteria, collective bargaining may change the criteria by which efficiency is measured. A further impact on financial planning that may result from collective bargaining is that faculty may have to accept, even promote[2] comprehensive cost analysis that has been suspect in the past. "Unionization clearly mandates and makes respectable that bitch, cost analysis."[3]

a. Traditional 'Labor/Management' Relationships

This section is speculative, since little work has been completed in Canada[4] on the impact on financial planning of more faculty participation in institutional management. Let us reflect on some areas in which collective bargaining will impact administration. Unionization forces an answer to a fundamental question - where does the management function reside? There are two parties to an agreement, therefore there must be a counterpart to the faculty association:

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[1] Ibid, p. 101.

[2] M.J. Robinson, "Report of the Characteristics and Activities of Public College Faculty in Alberta, Winter 1976", A Report prepared for Alberta Association of College Faculties. (n.d.).

[3] Charles J. Ping, "Unionization and Institutional Planning", Educational Record, Vol. 54, No. 2, (Spring 1973), p. 103.

[4] Pennsylvania State University is embarking upon a study to view the impact of collective negotiations and financial planning which will attempt to find out whether or not collective bargaining alters the relationship between governors, administration and the faculty associations.

> The paradox of faculty unionization is that although it is a faculty initiative, perhaps its most salutary effect will not be what it does for professors, but what it will do to make administrations more efficient, more alert to innovations and more responsive to the public interest.[1]

The counterpart then to the faculty association is the administration, as agent of the board.

In the traditional labor-management relationship, boards have the right to plan, organize, direct and control the operation of the enterprise and do all such things necessary except as otherwise required by law or as restricted by a collective agreement. That is, the employer has considerable unilateral authority for the enterprise. In Alberta universities, the tradition has been shared authority between the board and the general faculties council and various elected committees. Who has the power in universities is often difficult to discern, as Lindquist and Blackburn point out:

> No matter who you ask, and where you search, you will be told that the *real* power lies someplace else: Ask the faculty senator, and he will tell you the faculty is manipulated by the Dean: Ask the President, and he will say his hands are tied by the faculty's professional autonomy or union contract: Ask a student and the one thing he knows for sure about campus power is that he hasn't got it.[2]

The actual decision-making process in postsecondary institutions is complex.

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[1] Myron Lieberman, "Professors Unite!", Harpers, October 1971, p. 70.

[2] John D. Lindquist and Robert T. Blackburn, "Middlegrove: The Locus of Campus Power at a State University", AAUP Bulletin, Vol. 60, No. 4, Winter 1974, p. 367.

From the outside it may appear that the general faculties' councils make decisions or senior administrators make decisions; however, closer scrutiny suggests that key decisions on policy related questions are made in committees. These committees are generally made up of senior faculty members and thus shared authority is evident in the universities. Some faculty members argue that the key committees are stacked with professors who share managerial viewpoints and do not take into account other objectives. In the Lindquist and Blackburn study of campus power, they found that:

> ... the resulting power holders for campus-wide change will be a few senior faculty and executive administrators who guard and are restricted by faculty autonomy, scholarly meritocracy and the public service concerns of state officials.[1]

In the public colleges the concept of shared authority does not have the long standing tradition of the universities. However, the differences in the powers assigned to the boards of public colleges and universities are not so great as what may be viewed operationally. The Universities Act and the Colleges Act provide for the general powers of the board of governors and the general faculties council thus setting limits on managerial perogatives. Section 15 of the Universities Act provides that the board manage and control the university, but requires that the board consider "the recommendation of the general faculties council, if any, on matters of academic import...."[2] The powers of the general faculties council are included in Section 34. "Subject to the authority of the board, a general faculties council is responsible for the academic affairs of the university ...."[1]

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[1] Ibid, p. 378.

[2] The Universities Act, Revised Statutes of Alberta, 1970, Chapter 378, Sec. 15.1 (a), As amended 1973, Chapter 58, Sec. 15, effective 15 May 1973.

The Colleges Act gives similar managerial powers and duties to the boards of governors in Section 35; however, this Act is noticeably different regarding academic councils. Section 50 states:

> A college board, the academic staff association and the students' council shall enter into negotiations for the purpose of concluding an agreement providing for the establishment of an academic council for the college, its composition and functions."[2]

It is sometimes assumed that the intent of the Acts is a shared authority management model. However, the Universities Act states only that the board of governors must consider the recommendations of the general faculties council. Collective bargaining may push out any ambiguities of power because of the necessity to set down procedures and regulations in writing. Therefore, the board may increase its power at the expense of faculty power since

> ... the need for clarity will require a congruence between *de jure* and *de facto* power. Since *de jure* power is virtually a monopoly of the governing boards, which have allowed faculties to achieve *de facto* power in important areas, partly from design and partly from sloth....[3]

If the general faculties council or the academic council does, in practice, have substantial authority over a wide range of decisions and collective bargaining is being pursued rigorously, it may appear that, in effect, all decisions rest with the faculty. William Boyd, President of the University of Oregon suggests that a conflict will result, which may lead to the demise of the faculty council:

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[1] The Universities Act, Revised Statutes of Alberta, 1970, Chapter 378, Sec. 34.1.

[2] The Colleges Act, Revised Statutes of Alberta, 1970, Chapter 56, Sec. 50.

[3] William B. Boyd, "The Impact of Collective Bargaining on University Governance", Liberal Education, Vol. 58, No. 2, May 1972, p. 270.

> If the scope of negotiations at the table is wide - and the tendency is for it to widen each year... then the scope of authority delegated to a senate must be narrowed accordingly or conflicting jurisdictions would result. If faculty are allowed broad powers in both a union and a senate, they would, in effect, have a double dip. What they could not achieve through one channel they could pursue through the other. Governing boards are hardly likely to accept such a disadvantaged position. Senates are easy to parody. Even their defenders are often embarrassed by the tedious and petty tactics which sometimes characterize them, reminding one that the root word of senate means aged or uniform. But senates, for all their faults, have been a principal instrument in the governance of some of our finest colleges and universities. Their record of success justifies an uneasiness at the thought of their passing.[1]

However, Adell in his report to the AASUA takes the view that collective bargaining and faculty governance can co-exist:

> In our 1971 report, we expressed the hope that "in spite of the monolithic tendencies inherent in North American collective bargaining, the stronger Canadian universities may indeed be so resolutely pluralistic, that the entire collective bargaining mechanism would simply become another aspect of their pluralism." Developments in both the United States and Canada over the past three years seem generally to indicate that our optimism was warranted - or at least to fall far short of indicating that it was unwarranted.[2]

It appears that the Universities Act and the Colleges Act envisage managerial perogative to be given to Boards. What are these managerial perogatives then?

> When we speak of the term 'management's right'... we are referring to the residue of management's pre-existing functions which remains after

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[1] Ibid.

[2] Bernard Adell, "Association of Academic Staff: University of Alberta Collective Bargaining Rights for Faculty at the University of Alberta", August 1974, p. 100.

> the negotiation of a collective bargaining agreement. In the absence of such an agreement, management has absolute discretion in the hiring, firing, and the organization and direction of the working forces, subject only to such limitations as may be imposed by law...Except as management has agreed to restrict the exercise of its usual functions, it retains the same rights which it possessed before engaging in collective bargaining. This view is ... the only one that gives full recognition to the realities of the collective bargaining relationship. In general, the process of collective bargaining involves an attempt by a labor union to persuade an employer to accept limitations upon the exercise of his previously unrestricted managerial rights. To the extent that the union is unsuccessful in persuading an employer to agree to a particular demand, management's rights remain unlimited.[1]

An area of utmost importance is that of managerial perogatives relating to academic freedom and tenure. The protection of academic freedom or tenure outside of due process of the law or procedures in a collective agreement may not supercede managerial rights. In Alberta, if they do not have a collective agreement which provides for tenure, faculty cannot rely upon any Alberta statute for protection from the application of the theory of managerial rights. That is, there is no tenure act for college and university faculties to rely upon. Similarly, with academic freedom one must rely on the Individual Rights Protection Act or provisions of a collective agreement. Managerial perogatives are therefore limited by expressed provisions with a collective agreement.

### b. Models of Governance

The locus of power in educational decision making may be examined in terms of the models of governance that are applicable to the institutions in

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[1] James C. Phelps, "Management's Reserved Rights: An Industry View", in Management Rights and the Arbitration Process, Proceedings of the Ninth Annual Meeting, National Academy of Arbitration, Jean T. McKelvey (ed.), (Washington: BNA Books, 1956), p. 102-117, as cited in "The Presidential Address: Management Rights Revisited, Charles C. Killingsworth, President, (1968-1969), National Academy of Arbitrators, (Typescript.)

Alberta. Three commonly discussed are: Bureaucratic, Collegial, and Political. The political model is suggested as the one that is likely to survive in the face of collective bargaining.[1] In the bureaucratic model, a hierarchy is formed and the senior administration makes most decisions, including those which impact financial planning directly and excepting only those decisions restricted by a collective agreement. Analytical approaches to decision making will be suspect by faculty and the implementation of decisions based on these methods will not gain faculty support.

The collegial model has been advocated by many in Alberta's post-secondary institutions and is currently the one operative in the universities and some colleges. In this model the board shares authority through the general faculties council or academic council. However, as previously pointed out, there does not exist separate jurisdictions of authority. Therefore, it may be said that, "... What the board decides to share, it may subsequently decide to withhold, particularly if sharing does not produce the desired results."[2] If financial planning does not lead to serious conflict between general faculties councils and boards of governors, then this governance model could result in no negative impacts. Yet, the collegial model may not deal effectively with conflict, and collective bargaining essentially is a mechanism of conflict, that is, where conflict is resolved.

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[1] C.J. Victor Baldridge, Power and Conflict in the University, (New York: John Wiley & Sons Inc., 1971) pp. 9-17.

[2] Richard C. Richardson Jr., "Governance Theory, A Comparison of Approaches", Journal of Higher Education, Volume XLV, No. 5 (May 1974): 349.

Therefore, the political model is suggested by Richardson as the likely successor to the previous two. Adell however, opines that collective bargaining and the shared authority models can exist together:

> Students of collective bargaining in American higher education have as yet been unable to make any firm judgements about the effects of such bargaining on institutional governance, but they tend toward the view that those effects have not so far been detrimental to the shared authority concept, at least at most institutions. There is, of course, a danger, particularly at institutions where shared authority bodies are already weak, that the bipolar tendencies of collective bargaining will further weaken them. However, as with almost every other potential or actual subject of collective bargaining, the parties have the answer in their own hands. If they have the will to protect the position of shared authority bodies, they can easily do so by putting appropriate language in the collective agreement.[1]

Specifically, assuming general agreement on a financial plan, then implementation should not disrupt or alter existing relationships between boards of governors, administrators and faculties. Begin, in 1974 concludes his research into collective bargaining and shared governance in the United States by stating:

> The evidence to date suggests that where traditional systems of governance have been an integral part of the structures and of the expectations of the participants of a particular institution, it is not unreasonable to expect that the collective bargaining system which evolves will reflect and reinforce these contextual factors.[2]

The political model suggests that there are a variety of interrelated interests in postsecondary institutions. Conflict develops as each of these interest groups articulate their positions. However, mechanisms have been

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[1] Bernard Adell, "Association of Academic Staff: University of Alberta Collective Bargaining Rights for Faculty at The University of Alberta", August 1974, p. 101.

[2] James P. Begin, "Faculty Governance and Collective Bargaining: An Early Appraisal", Academic Collective Bargaining Service, Special Report No. 5, Washington, 1974, p. 11.

established to conciliate differences and to expedite decision making. Depending upon the issue, the decisions will be made by various segments of the organization. General faculties council or academic council would have authority over some decision, the board of governors over others, while certain joint decisions would be made by the faculty association and the board of governors. The real power to make decisions is diffused throughout the organization. A sufficient amount of time, effort and commitment is necessary by the constituent groups, if the model is to be effective. Representation from the Alberta Association of College Faculties to the government regarding changes in the Colleges Act indicate that the association views the governance structure within the political model. It would prefer the powers and duties set aside for boards of governors, academic councils and mandatory collective bargaining items, be included in legislation.[1]

The political model's impact on financial planning will depend on whose authority is effected the most. The faculty associations may not agree with some of the implications that a financial plan may have. The community of interest of the faculty associations and the general faculties councils or academic councils require further study, but general faculty councils and academic councils could adopt similar views as the faculty associations. Therefore, the implications of the economic issues discussed later may refer to both power groups and not just faculty associations.

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[1] See: Alberta Association of College Faculty submission to the Minister of Advanced Education and Manpower on the "Draft for Discussion: Adult Education Act", Spring 1976.

Today the major impact of collective bargaining on the limiting of managerial perogatives in this political model would fall on the administrator. With faculty association participation in decision making, a primary thrust could be for faculty to have extensive control over educational budgets. Unfortunately, no empirical research has been completed on the results of faculty control of budgets. It can be argued that such control will be self serving to the detriment of other institutional sectors. On the other hand it can be argued that faculty have a first hand knowledge of the institution and are professionals whose interests are not only monetary and therefore the decisions that are made will be for the greater benefit of education. Since a wide participation of faculty of various departments will be required, then a sharing of information may lead to common goals and directions.

## C. Economic Issues

The mutual impacts of collective bargaining and financial planning are examined in this section from the perspective of economic factors. The ramifications of two types of collective bargaining, productivity bargaining and province-wide bargaining are reviewed. Also, the interdependence of collective bargaining and financial planning is demonstrated by the number of policy variables which are both subjects of bargaining and components of models used in financial planning and described as important data elements in information systems which support financial planning.

a. Productivity Bargaining

An agreement whereby faculty accept changes in efficiency impeding practices in return for increases in pay or fringe benefits is called productivity bargaining. It is the aim of such an agreement to encourage management and the faculty association to cooperate in attempting to be as efficient as possible in institutional operation and to share the ensuing benefits of cost reduction. Educational institutions are labor intensive and slow in adopting technological innovations which can lead to greater cost efficiencies. Certain adjustments may affect the individual's job responsibilities and security, thus, unless there are some guarantees, faculty may be reluctant to be too innovative. Further, although the primary responsibility of faculty members is teaching, people question whether the rewards, both personal and financial, justify the effort required. The example often cited is of the excellent researcher or writer (who brings in large government and private research contracts, who may sit on prestigeous outside agencies, committees or associations, publishes articles and books), who compared to the "good teacher" moves through the professorial ranking system more rapidly than the colleague devoted primarily to teaching.

Productivity bargaining is an ongoing operation which involves continuous consultation with the faculty and as such would impose certain demands:

1) The cost and benefits of implementing efficiency-increasing changes must be assessed in detail. Faculty must be assured their job will continue or that redeployment or retraining of the redundant worker is possible. Benefits that may accrue are more resources for libraries, stu-

dent aid, scholarships, community service activities and more funded research.

2) It may be necessary to restructure aspects of the decision-making process to ensure meaningful participation of the faculty members. It is not clear, however, whether or not participation leads to a contented faculty and whether this contentment also manifests itself in either better educated students, better research and greater community involvement, as well as increased efficiency. The increased efficiency may be due to the acceptance of decisions that had been made jointly as opposed to the reluctant acceptance (or even blocking) of implementation of decisions made without suitable participation.

3) The administration must maintain an awareness of the diversity of group interest and objectives of the staff. In this way it may be possible to ensure that the educational goals and objectives of faculty more closely parallel those of the administration and board.

There are some inherent difficulties in employing a productivity bargaining industrial model to education. The major one is outcomes measurement, discussed in Chapter IV. As Verry and Layard point out:

> A fundamental problem involved in the estimation of university cost functions is the definition and measurement of output. Even though we concentrate on teaching and research outputs, ignoring universities' more intangible functions of preserving knowledge..., of providing a source of independent social comment and so on, we are forced to adopt second-best definitions. With regard to the teaching output, there are many characteristics of a graduate that are relevant. Some, such as cognitive skills and attitudes to change, mainly affect his capacities as a producer, while others mainly affect his capacities for enjoyable consumption. However, although we experimented with more ambitious measures we end up using the number of ... student years as proxies for ... teaching outputs.[1]

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[1] D.W. Verry and R.G. Layard, "Cost Functions for University Teaching and Research", The Economic Journal, Vol. 85, No. 337, March 1975. p. 57.

Thus it is hard to see how one can embark on productivity bargaining without suitable answers to questions such as:

1) How do you measure research outcomes/activities?

2) How do you measure community/professional service?

3) Is there a justification other than seniority for a full professor to teach less number of formal classroom hours and have fewer students than an assistant professor?

4) Should faculty teaching similar disciplines be expected to have similar workloads?

5) What is an equitable workload?

If professors are employed to teach, to do research and to engage in professional service, then effective measures of these activities and resulting outcomes are necessary to determine productivity and thereby justify increases or decreases in compensation. One wonders whether productivity bargaining can accommodate individual department differences in "workload" without norms and the measures of outcomes or activities being more speculative than empirical? The final test of acceptability rests with the boards of governors and faculty associations for they are the ones that can make such a scheme workable or not.

### b. Province-wide Bargaining

Province-wide bargaining means that members of the associations would be organized on a provincial level and would bargain with government over terms and conditions of employment. An important variation of province-wide bargaining is "two-tiered bargaining" in which a provincial association of faculties would bargain with government over items such as salary and fringe benefits, section size, faculty load and weekly student hours. Items such as working conditions, other non-monetary fringe benefits, tenure, redundancy, promotion and other non-financial matters would be bargained with the individual institution. The financial impact would vary from institution to institution.

The concept of province-wide bargaining is used in Quebec and Ontario, and in some states, for example Pennsylvania, New Jersey and New York. The implications of province-wide bargaining, or even two-tiered bargaining, have not been examined in any detail in Canada at the postsecondary level and it is difficult to speculate on whether such a system would be accepted in Alberta.[1]

Financial planning may encourage a trend towards province-wide bargaining, if centralizing forces already exist within the system.
Under province-wide bargaining, institutions may seek the help of the government in establishing a bargaining agency. The development of such an agency, in the view of some, may be foreseen if the trend towards the co-ordination of a system-wide educational thrust, reduction of duplication of facilities and/or programs, central registration, etc., are indicative of a direction. In terms of financial planning for the system, there may be advantages to province-wide bargaining. If government is directly involved in the settlement of more than half the operating costs of institutions, institutional and system-wide financial planning could concentrate on the

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[1] The secondary school teachers have had experience in province-wide and two-tiered bargaining. See for example: Sterling McDowell, "Bi-level Bargaining in Saskatchewan", A paper presented to the Negotiations Conference, Michigan Education Association, Southfield, Michigan, 16 January 1976.

distribution of these resources and the allocation of the remaining funds.

Adell addresses himself to the implications for the AASUA of province-wide bargaining. One reason that university faculties should not move in this direction:

> ... is not that there are severe conflicts between the interests of faculty members in different universities but that mutual trust and habits of cooperation between the faculties of different institutions are surprisingly difficult to develop. In provinces like Alberta, the reason for that difficulty seems to lie in the traditional distrust of the longest established university by the newer institutions, and in the corresponding fears of fragmentation with which the former looks upon the latter.[1]

The second reason that Adell gives for faculty rejection of province-wide bargaining, relates to the reduction of scope of bargainable issues.

> A major danger, then, if faculty collective bargaining is moved quickly to the provincial level with the government across the table may not be (as we said in our 1971 report) that all issues will be put on the table, but rather that only a restricted range of issues will actually be the subject of bargaining with all the rest tending to become subject to unilateral government determination.[2]

Philosophically there have been three traditional objections to free collective bargaining with the government.

1) The sovereignty argument
2) Essentiality of the service
3) Inappropriateness of a strike in public employment

Bargaining pressures by faculty associations may be conceived as being an

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[1] Bernard Adell, "Association of Academic Staff: University of Alberta Collective Bargaining Rights for Faculty at The University of Alberta", August 1974, p. 96.

[2] Ibid, p. 99.

"affront to the symbolic authority of a democratic government"[1], and therefore simply inappropriate action. The Alberta Cabinet Committee on Education rejected the principle of province-wide bargaining in 1973.[2]

The arguments often advanced for province-wide bargaining are threefold. First, since the funds are public monies, the bargaining relationship should be with those who hold the purse strings, that is, the provincial government. Second, a larger bargaining unit may have the political clout necessary to advance its own interests. A large bargaining unit would be able to make its voice known when any legislative changes are offered. Also, it may be possible for a large unit to intervene in the legislative process in order to have what it would consider a fair and just hearing. The third reason for province-wide bargaining is protection from other labor groups interested in organizing institutional workers. That is, those with common interests, university and college faculties, may be better served if they band together and form their own organization which they control and direct. On the other hand, there are a number of questions which would have to be answered before province-wide bargaining could be seriously considered. These include what will be done:

- with existing different salary levels?
- with the variety of workloads throughout the province?
- about the various fringe benefit plans that exist at the

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[1] Bernard Adell, "Association of Academic Staff: University of Alberta Collective Bargaining Rights for Faculty at The University of Alberta", August 1974, p. 97.

[2] Ibid, p. 96.

institutions in the province?

- with existing institutional priority of functions and activities?

## c. Financial Planning and Collective Bargaining: Mutual Policy Variables

### 1. The Elementary Model

The elementary model (see Chapter V.E.c.) is one relationship among many of the policy variables that influence financial planning and are particularly relevant to the allocation problem. Application of the model suggests that given (by some means) the numerical values of variables such as average class size, average faculty loads, average faculty salaries and certain assumptions such as "all other things are equal" with respect to the instruction program and other primary programs, AAEM could allocate funds to institutions on the basis of only one exogenous variable, such as FTE students or weekly student hours suitably determined for the budget year. On examining these parameters of the elementary model, one may note that various faculty associations traditionally bargain on at least the following:

1) Faculty salaries including related fringe benefits
2) Average class size (student contact hours)
3) Faculty load (including teaching hours per week)

One can add to this list the following item which could become a topic for collective bargaining,

4) Changes in research and public service requirements

Thus, this comparison underlines the very close mutual concerns of collective bargaining and financial planning. While the processes and their externalities may appear very different, it is nonetheless evident that they share much of substance and hence, under certain circumstances become very interdependent.

Since the financial planning applications and implications of the elementary model are treated in other sections of this report, we will concentrate comment on the model in this section from the collective bargaining perspective. The limitations of the elementary model (or any simulation) in financial planning applications are present in collective bargaining uses as well. One must remember that the model is a concept of reality. It is an approximation resting on a set of assumptions. It is a mathematical expression of relationships among a set of variables which is intuitively obvious. Hence, the real value of the elementary model is that it provides a capsule statement of fundamental relationships which approximate to varying degrees, the circumstances of interest in most teaching units and collectives of teaching units.

Notwithstanding the above, there are a number of possible applications of models to financial planning that can impact collective bargaining, in what may be seen as an unsatisfactory way. If for example, it was suggested that an institution should conform to system-wide standards of the various policy variables, then this may be seen as a restriction on the scope of institutional collective bargaining. If each teaching unit was forced to comply to a system-wide set of policy variable values, the model would become an employment model. The model would decide how many faculty members would be hired on the basis of budgeted weekly student hours and the values of the policy variables. There would be no room for institutional planning beyond enrolment projections and no room for collective bargaining of the policy variables, except at the system level. In Alberta, the block grant principle has been the norm. Institutions receive funds from AAEM and internal allocation of these funds is the responsibility of the board. Therefore, suggestions for use of a model, such as the elementary model to allocate funds to institutions do not imply:

1) that each institution must conform to system-wide standards for policy variables,

2) that internal institutional allocation of AAEM funds must use the same model or the same policy variable values as those used to make institutional allocations.

The example of the elementary model is timely because there seems to be an increased use of analytical methods based on improved information systems in both institutional management and collective bargaining.

### 2. Faculty Flow Models

If faculty members do not change jobs as rapidly as in the past and if the total student population is static, various implications can be drawn. One must first note that even with a growing student population, the student mix is important. An institution can have a department with decreasing enrolees while the total student population is increasing. A financial plan may have to take into account a natural increase in the financial resources required, simply because of the rank ordering of faculty at institutions. For example, there will be a noticeable difference in cost if every full professor that leaves an institution, for whatever reason, is replaced by a lecturer. Yet, a collective agreement may set ratios of full professors to associate to assistant, which must be maintained. It may also require the university to avoid giving term appointments. A collective agreement could eliminate much of the discretion in promotions, such that most of the faculty members will be at the top of the salary scale in a given number of years. Further, a collective agreement may require elaborate and costly procedures to be followed in the case of redundant faculty members. What the total financial impact of a stable number of faculty members moving through a highly structured salaried system will be on financial resource requirements, is not a topic well researched by the universities.

In the colleges sector, a similar analysis may net useful planning information. The increase in cost, taking account of retirement, redundancy, and new hirings as faculty moves through a grid system can be calculated for each college. Many of the college collective agreements have a redundancy clause which restrains unilateral decisions by boards and incurs additional costs to the institution. Costs of redundant faculty members, retraining and faculty development, early retirement, tenure rules, etc., and alterations due to collective bargaining may, in the future, be considered "continuing fixed costs" of postsecondary institutions.

Another of the major impacts that collective bargaining may have on financial planning is the altering of the fixed/variable cost relationship over time. For example, some benefits for which the faculty pay the total cost or share the cost with the board may be negotiated as a total cost item. Examples are long-term disability, accidental death and dismemberment and life insurance for which rates depend on salary and age distributions of members. Therefore, as salary and age increase, one could expect the premiums for these benefits to increase as well. Similarly, an item that is becoming increasingly important is pension requirements. If the age of retirement is reduced (or the combined age and years of service requirement) then this may impact significantly costs to the institution. While it may have been difficult to estimate the projected increases in costs with the influx of younger faculty members and the movement between institutions of experienced members, the future may be more stable. Therefore, it may be practical to incorporate more accurate calculations into costing formulas and projections.

The above paragraphs suggest another set of policy variables which are of mutual interest in financial planning and collective bargaining. Collective bargaining usually includes negotiation on:

1) Faculty retirement and/or redundancy
2) Tenure policy
3) Hiring policy and procedures
4) Promotion criteria, quotas
5) Salary scales and merit increments and fringe benefits

By preparing faculty data on the universities and colleges, one has a profile at a point in time. Faculty flow analysis is designed to estimate effects on faculty hiring, promotion and retirement policies and attrition rates on projected budgets and open faculty positions. Faculty flow analysis may assist in estimating effects that these policies may have on alleviating problems of increasing academic salary costs accompanied by decreasing flexibility within constrained budgets.

A faculty flow model is a useful tool in financial planning and one, like the elementary model, that uses the values of policy variables which are typically negotiated under collective bargaining. Such a model allows analysis of the effects of policy alternatives on budget requirements. The usefulness of a faculty flow model that depicts the movement of faculty through the grid system of compensation and the related fringe benefit costs is evident. Faculty salary costs (including related fringe benefits) may be projected as faculty move through the grid system. One could calculate what costs would accrue from year to year should there be no change in the relative positions of faculty, and then examine the increased costs due to inflation, "productivity", and increase or decrease in costs due to bargaining strengths.

One could carry the discussion of interdependency of financial planning/collective bargaining as illustrated by the faculty flow model further. Besides the mutual interest in a set of policy parameters it follows that financial planning/collective bargaining will also be mutually enhanced or limited by the characteristics of the information systems (institutional or system-wide) which are available to support such analysis.

### 3. Inter-Institutional Information

Bargaining and planning are enhanced by information systems that provide comparisons between faculties and institutions. Thus, one of the major impacts that collective bargaining has and will continue to have on institutions is the requirement for a data base that will not only be useful for collective bargaining but for other institutional and/or system planning purposes.[1] A province-wide system of data collection may facilitate the exchange of institutional information and enhance each institution's and each faculty's understanding of the similarities and differences that exist. Enrolment projections, patterns and staffing trends are necessary for planning and collective bargaining. External comparisons of faculty-student ratios, contact hours, professional support staff provisions, funds for sabbaticals and staff development, and redundancy, may improve the quality of decisions made at both the bargaining and the planning tables. By having data available, answers to "what if" questions, often posed at a negotiations table can be answered readily instead of generating mutually opposing speculation. Excessive financial demands made by faculty associations may be decreased if there were more information available to them. Neil Bucklew suggests that

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[1] J.P. Smith et. al. "Academic Career Planning: The Ivory Tower and the Crystal Ball", Report of the Joint COU/OCUFA Committee, (Toronto: Council of Ontario Universities, 1976).

> ... the "extreme nature" of proposals is often linked to an inadequate understanding of the resources available or the processes involved and not a representation of a basically destructive or unconcerned attitude.[1]

The establishment and coordination of an inter-institutional data base may require special administrative resources to prepare and maintain the information base and to facilitate the interchange of information. Research personnel, secretarial services and office space would be required; however, the benefits of accurate and comprehensive information on which to make future collective bargaining decisions may outweigh the costs.

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[1] Neil Bucklew, "Fiscal Judgement in Bargaining Can Uncover Hidden Costs", College and University Business, March 1971, p. 49.

# APPENDIX R

# STUDENT ASSISTANCE PROGRAMS

Postsecondary student assistance programs across Canada are anchored in a variety of ways to Canada Student Loans legislation. The following summary highlights the program variations in each province and the Territories, and elaborates details of the programs currently operative in Alberta. General features are also described for student assistance programs sponsored by the United States Government and by three universities.

Table 1 shows the total amount of awards and the number of students receiving awards for each province over the five-year period, 1971-72 to 1975-76.

## A. The Canada Student Loans Program

The purpose of the Canada Student Loans Plan is to provide loan assistance towards meeting the costs of full-time studies at the postsecondary level of education. The Plan is meant to supplement other resources available to students from their families, their own savings and other student awards. A student is eligible for Canada Student Loans if the student meets the following criteria:

1) Is Canadian or has landed immigrant status and has lived in Canada for 12 consecutive months prior to the time for which assistance is being granted

2) Is resident of a province participating in the plan

3) Has attained a satisfactory scholastic standard

4) Plans to take a full-time student academic load

5) Has insufficient resources to meet educational costs

6) Enrolled or qualified to enrol in a postsecondary course of

## TABLE 1

## CROSS-CANADA SURVEY OF STUDENT ASSISTANCE PROGRAMS

| AWARD/PROVINCE | AWARDS ($'000) 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 | NUMBER OF STUDENTS 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|---|---|---|---|---|---|---|---|---|---|---|
| BRITISH COLUMBIA[a] | | | | | | | | | | |
| Canada Student Loans and Provincial Loans | 7 308 | 5 400 | 7 980 | 9 824 | N/A | 9 714 | 7 291 | 11 559 | 16 692 | N/A |
| Provincial Grants | 1 021 | 1 195 | 2 353 | 10 490 | N/A | 4 877 | 3 972 | 8 513 | 14 621 | N/A |
| TOTAL BRITISH COLUMBIA | 8 329 | 6 595 | 10 338 | 20 314 | N/A | 14 591 | 11 263 | 20 072 | 31 313 | N/A |
| ALBERTA | | | | | | | | | | |
| Canada Student Loans[b] | 13 640 | 15 112 | 15 489 | 16 205 | 18 575 | N/A | N/A | N/A | 15 509 | 14 722 |
| Provincial Awards[c] | 12 528 | 9 227 | 10 302 | 8 680 | 10 591 | N/A | N/A | N/A | 11 594 | 13 493 |
| TOTAL ALBERTA | 26 168 | 24 339 | 25 791 | 24 885 | 29 166 | N/A | N/A | N/A | 27 103 | 28 215 |
| SASKATCHEWAN[d] | | | | | | | | | | |
| Canada Student Loans | 7 671 | 7 067 | 6 413 | 5 595 | 5 486 | 9 262 | 8 111 | 7 349 | 5 736 | 5 947 |
| Provincial Awards | 2 126 | 3 038 | 3 556 | 3 702 | 4 568 | N/A | 7 664 | 9 118 | 8 913 | 6 317 |
| TOTAL SASKATCHEWAN | 9 797 | 10 106 | 9 969 | 9 297 | 10 054 | 9 262 | 15 775 | 16 467 | 14 649 | 12 264 |
| MANITOBA[a] | | | | | | | | | | |
| Canada Student Loans[e] | N/A | 3 937 | 6 559 | 7 422 | 7 115 | N/A | 1 845 | 1 950 | 2 280 | 1 872 |
| Provincial Bursaries[e] | N/A | 3 403 | 5 209 | 6 764 | 6 233 | N/A | 5 691 | 6 961 | 7 824 | 7 483 |
| TOTAL MANITOBA | N/A | 7 340 | 11 768 | 14 186 | 13 348 | N/A | 7 536 | 8 911 | 10 104 | 9 355 |
| ONTARIO[a] | | | | | | | | | | |
| Canada Student Loans and Ontario Student Assistance Program Loans | 35 375 | 48 151 | 50 996 | 61 516 | 70 857 | 16 751 | 23 374 | 23 089 | 28 048 | 32 567 |
| OSAP Grants[f] | 29 794 | 25 056 | 31 134 | 40 016 | 51 130 | 44 997 | 39 307 | 48 912 | 61 011 | 59 247 |
| TOTAL ONTARIO | 65 169 | 73 207 | 82 130 | 101 533 | 121 987 | 61 748 | 62 681 | 72 001 | 89 059 | 91 814 |
| QUÉBEC[g] | | | | | | | | | | |
| Loans | 28 546 | 27 465 | 26 027 | 26 481 | 34 915 | 52 312 | 50 919 | 47 647 | 45 327 | 53 295 |
| Bursaries | 15 886 | 18 524 | 20 136 | 26 564 | 31 689 | 28 497 | 28 966 | 29 613 | 31 134 | 36 316 |
| TOTAL QUÉBEC | 44 432 | 45 989 | 46 163 | 53 045 | 66 604 | 80 809 | 79 885 | 77 260 | 76 461 | 89 611 |
| NEW BRUNSWICK | | | | | | | | | | |
| Canada Student Loans | 6 807 | 7 218 | 6 804 | 7 445 | N/A | 8 121 | 7 560 | 7 080 | 6 978 | N/A |
| New Brunswick Bursaries | 2 091 | 1 901 | 2 118 | 2 536 | N/A | 4 687 | 4 278 | 4 588 | 4 859 | N/A |
| TOTAL NEW BRUNSWICK | 8 899 | 9 119 | 8 922 | 9 981 | N/A | 12 808 | 11 838 | 11 668 | 11 837 | N/A |
| NOVA SCOTIA | | | | | | | | | | |
| Canada Student Loans | 9 143 | 10 496 | 11 213 | 12 240 | 13 706 | 9 831 | 8 875 | 8 662 | 8 891 | 9 611 |
| Nova Scotia Government Bursaries[h] | 4 184 | 2 046 | 3 554 | 4 732 | 4 911 | 10 253 | 5 716 | 6 209 | 7 842 | 7 747 |
| TOTAL NOVA SCOTIA | 13 328 | 12 543 | 14 768 | 16 972 | 18 617 | 20 084 | 14 591 | 14 871 | 16 733 | 17 358 |
| PRINCE EDWARD ISLAND | | | | | | | | | | |
| Canada Student Loans | 1 738 | 2 124 | 1 942 | 1 890 | 1 997 | 1 944 | 1 774 | 1 584 | 1 502 | 1 548 |
| Provincial Bursaries | 561 | 455 | 541 | 613 | 679 | 1 690 | 988 | 1 023 | 1 089 | 1 098 |
| TOTAL PRINCE EDWARD ISLAND | 2 300 | 2 579 | 2 484 | 2 503 | 2 675 | 3 634 | 2 762 | 2 607 | 2 591 | 2 646 |
| NEWFOUNDLAND | | | | | | | | | | |
| Canada Student Loans | 5 664 | 6 849 | 5 752 | 4 610 | 4 583 | 6 463 | 6 196 | 4 691 | 4 149 | 4 626 |
| Provincial Awards | 3 331 | 2 429 | 1 443 | 2 177 | 4 192 | 5 598 | 4 996 | 2 787 | 3 240 | 3 642 |
| TOTAL NEWFOUNDLAND | 8 995 | 9 278 | 7 196 | 6 787 | 8 775 | 12 061 | 11 192 | 7 478 | 7 389 | 8 268 |

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[a] Number of awards as opposed to number of students.

[b] Number of students is estimated and includes those receiving provincial loans.

[c] Awards include Province of Alberta Awards, Remissions, and Provincial Loans. Number of students is those receiving remissions.

[d] Assistance includes grants in the form of bursaries and scholarships by several Saskatchewan government agencies. Included under number of students are number of awards for Medical Care Insurance Commission and University. 1975-76 figures for University scholarships not available.

[e] Number of students includes those receiving Canada Student Loans and bursaries.

[f] Number of students includes those receiving OSAP loans and grants.

[g] Institutions eligible only for loans excepted.

[h] 1971-72 and 1972-73 figures include Nova Scotia government loans (which were discontinued in 1973-74.)

Source: Data collected from jurisdictions with the assistance of Mr. Fred Hemingway, Students Finance Board.

studies at a specified educational institution anywhere in the world that has been designated by the province for a course of studies not less than 26 weeks of assigned work in an academic year. (In certain cases a semester lasting at least 13 weeks of assigned work may be acceptable if it forms part of a longer program.)

The maximum loan amount that may be authorized to a student is $1 800 for a full academic year or $900 for one semester where it forms part of a longer course of studies, with an overall maximum of $9 800 for the entire educational period. The loan is guaranteed to the lender by the federal government.

The federal government pays the interest on the loan in the academic year or semester and for six months afterwards. If the student receives a loan in a subsequent academic year or semester, the prior years' loans are maintained at interest-free status to the student providing the subsequent loan is negotiated before the interest free period has expired. If a student returns to full-time studies after commencing repayment, the loan may be reinstated to interest-free status. At the time repayment begins the student signs a consolidated guaranteed student loan agreement with a bank which specifies the rate of interest to be charged and the terms of repayment. The rate charged cannot exceed the rate in effect on the date that the agreement is signed, or on the last day of the sixth month after the month in which full-time studies ceased, or the rate in effect for consolidations when a student actually received the funds. The repayment period may not exceed nine and a half years from the date on which the student becomes liable to repay the debt. The loan may be repaid in full or in part at any time in advance without extra cost or penalty. If the student dies before the loan is repaid, the federal government repays the lender and the debt is cancelled.

All student assistance plans in the provinces and the Yukon and Northwest Territories are tied to the Canada Student Loans Plan, with the exception of the Province of Quebec, which operates its own student assistance plan. The Canada Student Loans legislation provides for an alternate payment by the federal government towards the costs of provincially operated programs and Quebec has chosen this option.

## B. Programs in the Provinces and Territories

*British Columbia* - The British Columbia Student Assistance Plan provides assistance in the form of loans and grants; the first $600 in Canada Student Loans and the remainder in 50% loan and 50% grant, to a maximum of $1 800 in Canada Student Loans and $1 500 British Columbia bursary. During 1976-77, funds will be available to eligible students undertaking a minimum of 60% of a full program of study as defined in an institution's calendar. Undergraduate students in provincially assisted postsecondary institutions are eligible for a loan and a grant. However, students taking courses outside British Columbia which are not available in the province are eligible only at the discretion of the British Columbia Student Loan Committee.

*Alberta* - Alberta provides for financing of student's postsecondary education primarily by a system of loans and remission. Other types of awards, such as scholarships, fellowships, bursaries, grants and prizes are provided for under the Canada Student Loans Act and the Alberta Student Loan Guarantee Act. Guaranteed loans are available through the federal and provincial governments. Loans are administered by the Students' Finance Board and are awarded on the basis of demonstrated financial need.

Major provincial financial assistance programs are summarized below:

1) *Programs Administered by the Students' Finance Board* - Aid is provided through a $1 800 Canada Student Loan and a maximum $2 500 Alberta

Student Loan, for an overall maximum of $4 300 per year. Awards are made on the basis of the 1976-77 Canada Student Loan criteria.Alberta and Canada Student Loans are available to students studying in Alberta and outside the province in courses not available in Alberta.

After a student graduates, the Students' Finance Board may grant a remission of 50% of the total the student borrowed during his first year of studies, 40% of the amount he borrowed in his second year, and 25% of the amount borrowed in all future years of studies. Remissions are contingent upon the student, and where applicable, the parents or spouse, making reasonable contributions towards the students' education, as well as the student demonstrating satisfactory academic achievement. Those students attending institutions outside the Province of Alberta are not eligible for remissions.

2) *Scholarships and Bursaries* - The Students' Finance Board also administers a variety of other awards which include:

a) Province of Alberta Scholarships - $150 to matriculating or university undergraduates with greater than 80% averages.

b) Province of Alberta Prizes - $150 to technical vocational students on the basis of academic excellence and staff recommendations.

c) Province of Alberta Graduate Scholarships and Followships - maximum of $4 800 per calendar year of studies to Canadians or landed immigrant students who were registered full-time on the basis of academic achievement on recommendation of the university.

d) Banff School of Fine Arts Bursaries - maximum of $250 determined by financial need and past achievement.

e) Northern Alberta Development Bursaries - up to $2 500 academic year if single, and $4 800 if married, dependent upon financial need, granted to students who intend to apply their education to remote areas of the province and who agree to one year of work for each year of bursary support in a remote area. There is a three-year residency requirement attached to these bursaries

f) Bilingual Federal-Provincial Education Programs - travel bursaries, teacher training bursaries and followships, awarded to students or French Language teachers.

g) Disadvantaged Students' Grant - maximum of $5 000 per year, at least $1 000 of which must be loan and the remainder of which may be in the form of a grant.

h) High School Bursaries - maximum of $300 per school year based on satisfactory school records and financial need.

i) Adult High School Grants - maximum loans of $1 500 if single, or $2 500 if married, to students 18 years of age or older and who have been out of school for at least one year, or who are married or who have dependents. Additional grants of $100 to $600 are also available.

j) World College of the Atlantic/The Lester B. Pearson College of the Pacific Scholarships - one World College and three Pearson scholarships of $5 000 over a two-year period are allocated each year.

k) Part-time Bursaries - maximum of $300 per term on the basis of financial need.

l) Vocational Teacher Education Bursaries - maximum of $5 000 to students enrolled in an approved program, who hold apprenticeship qualifications and who are willing to provide services to school boards under the Minister of Education.

3) *The Alberta Vocational Training Program* - The purpose of the Alberta Vocational Training Program is to help disadvantaged Albertans to improve their situations through academic upgrading and life skill or vocational training programs. The program is administered by AAEM and is similar to the Canada Manpower Training Program.

Assistance is available for the support of persons enrolled in academic upgrading programs or vocational training programs not exceeding 52 weeks. Assistance generally includes funds for tuition, books and related educational costs, and training allowances to help maintain the student during the period of study or training.

In order to receive support under this program, the student must meet the following criteria:

a) Be an Alberta resident

b) Be 17 years of age or older

c) Have been out of school for 12 months

d) Be unemployed or underemployed

e) Demonstrate financial need

f) Satisfy the Department of Advanced Education and Manpower that the training will be beneficial

Training allowances are provided on a per diem basis, based on the number of residences maintained and family status.

4) *Vocational Rehabilitation of Disabled Persons* - This program is similar to the Alberta Vocational Training Program and aimed at those who are suffering from a mental or physical handicap. Handicapped or disabled persons are encouraged to train or obtain an education which helps them become economically self-sufficient. Special attention is placed on the

types of opportunities available, given the nature of the handicap. Funds for the program are provided jointly by the provincial and federal governments. Assistance is available for any period of education or training required for the person to become self-sufficient.

5) *Social Services and Community Health* - The Alberta Department of Social Services and Community Health assists persons who are receiving social assistance but cannot attain employment to achieve self-sufficiency through some form of upgrading education or training. Applicants are expected to register under the Canada Manpower Training Program or the Alberta Vocational Training Program if possible. If allowances under either of the programs are inadequate to support the student, Social Services supplements the allowances.

*Saskatchewan* - Aid to Saskatchewan students is provided by Canada Student Loans, Saskatchewan Student Loans and Saskatchewan Student Bursaries. The first $700 of assessed need is provided in Canada Student Loans. Additional need is provided by a graduated combination of Canada Student Loans and Saskatchewan Bursaries to a maximum loan/bursary award of $3 600 for an academic year (Canada Student Loans $1 800, Saskatchewan Bursary $ 1 800). Bursaries become repayable if the student ceases to become full-time during the academic period for which the bursary assistance is granted. Provincial government assistance is not available for out of province study unless a similar course of study is not available in Saskatchewan.

Saskatchewan Student Loans, to a maximum of $1 600 per academic year, are available to students who fail to qualify for financial assistance under the Canada Student Loans Plan. In most cases these loans are granted for programs which do not require Grade XII standing for entrance, or are of insufficient length to satisfy the Canada Student Loan Criteria. Saskatchewan student loans are repayable at 6% annual interest. One interest-free month is allowed for each $50 borrowed. The student must commence payment on the first day of the seventh month following graduation or discontinuation of studies.

In addition, special assistance is granted in the form of bursaries and scholarships by several Saskatchewan government agencies.

*Manitoba* - Two basic sources of financial assistance are combined into one framework, The Manitoba Student Aid Program, comprised of non-repayable Manitoba government bursaries, and Canada Student Loans. In addition, there are a number of special awards: Special opportunities/teacher training bursaries, special opportunities/handicap bursaries, federal bilingual support programs, special opportunity dental nursing bursaries, and the Prince of Wales/Princess Anne bursaries.

The maximum amount of assistance for a regular academic year is $3 200 ($1 400 Manitoba Government Bursary and $1 800 Canada Student Loan). Deferred bursaries are available if need is less than $1 800; that is, when repayment is due, deferred bursaries may be paid against the Canada Student Loan to a maximum of $800 calculated on a sliding scale based on the value of the loan. Students taking courses not offered in Manitoba at pubicly supported institutions are eligible for loans, regular bursaries and deferred bursaries.

If the awards granted under the Manitoba Student Aid Program are not sufficient to meet an applicant's full needs, further supplementary student aid may be available through the Department of Health and Social Development.

*Ontario* - The Ontario Student Assistance Program (OSAP) provides loans through the Canada Student Loans Plan and grants through the Government of Ontario. The first $1 000 of need is met through Canada Student Loans and the remainder, if any, through grants.

The Ontario Special Bursary Program for part-time students is intended to help Ontario students who are on social assistance or who are unemployed or have a low family income. The special bursary has recently been extended to include academic upgrading programs at the CAAT and certain part-time programs at private, business and vocational schools.

The Ontario Student Loans Plan is designed to provide aid to students such as part-time students and students enrolled at public postsecondary institutions in programs which are less than 26 weeks in length or do not require Grade XII for entry. Eligible students receive up to $900 per semester and interest rates and terms of repayment are similar to those for the Canada Student Loans Plan.

*Quebec* - Quebec does not participate in the Canada Student Loans Plan but operates a provincial loan and bursary program. It is a policy of the Government of Quebec that any student who is able and willing to undertake or pursue college or university studies should be granted financial aid as required. A contribution towards the cost of their studies is expected from all students or from their parents or spouses insofar as their financial situation enables them to make such contribution. Aid is equal to the amount the student is required to pay for tuition fees and living allowances over a period of 52 weeks. The maximum annual loan amounts are $630 at the Cegep level, $870 at the university level, if the student has not yet obtained a first cycle university degree, and $1 250 at the university level if the student is enrolled in a regular course of studies subsequent to obtaining a first cycle university degree. Assistance required over this amount is given in grant.

Students who attend universities and Cegeps may be eligible for both bursaries and loans. Loans are interest-free for the duration of the studies. Students who attend institutions outside the province or private institutions are eligible only for loans.

*New Brunswick* - Student assistance is provided in Canada Student Loans and New Brunswick Bursaries; the first $1 400 is from Canada Student Loans, the second $1 000 is from a New Brunswick Bursary, and the final $400 is from Canada Student Loans. A grants program based on academic standing makes fellowships of $3 000 or scholarships of $1 500 available to students studying at the postgraduate level. Graduated loan remissions are paid only when the student receives his degree, diploma or certificate.

*Nova Scotia* - Similar to the New Brunswick structure, the Nova Scotia Student Aid Program provides assistance through Canada Student Loans and Nova Scotia Governments Bursaries to a maximum of $2 800 per academic year. All undergraduates registered in institutions in the Maritime Provinces, provided they have passed four full credit courses in the previous year, may receive full assistance. Graduate students are eligible for full assistance for study outside Nova Scotia only.

*Prince Edward Island* - The student assistance program provides funds apportioned as follows: The first $1 400 of need is Canada Student Loan, the next $800 of need is 50% loan and 50% bursary, and the balance, if any, is Prince Edward Island Bursary to a maximum of $600.

*Newfoundland* - Newfoundland Student Aid Program provides assistance as follows: The first $450 of need per semester is awarded in Canada Student Loan. Additional need is met by provincial government student aid in the form of non-repayable tuition remission and allowances, not exceeding $950 per semester for single students and $1 200 per semester for married students. The remaining need, if any, is through Canada Student Loans, to bring the total Canada Student Loan to a maximum of $900 per semester. Students who are attending institutions outside the province for programs not available in Newfoundland are eligible for provincial government assistance.

*Yukon Territory* - Students from the Yukon Territory are eligible for a $1 800 Canada Student Loan to attend any postsecondary institution in the world. In addition, Yukon Bursaries, based on grades received in high school, are available. A student who receives a matriculation average of greater than 65% may receive a $600 scholarship per year, and a student who after his first year of study at a postsecondary institution receives grades of at least 60% may receive a $400 scholarship.

*Northwest Territories* - Students from the Northwest Territories are eligible for a maximum of $1 800 Canada Student Loan to attend any postsecondary institution in the world. Fifteen Northwest Bursaries valued at $1 600 each are also available.

## C. The United States Guaranteed Student Loan Program

The United States Office of Education coordinates and administers a program of low-interest long-term loans for students attending colleges, universities and vocational, technical, business and trade schools. Loans are provided by participating lending institutions and are insured by a state or private non-profit agency, or by the federal government. All federal, state and private non-profit programs under the Higher Education Act are collectively referred to as the Guaranteed Student Loan Program. The maximum amount borrowed per academic year is $2 500, to a total of $7 500. If the student's family income is less than $15 000, the federal government pays the interest on the loan until the repayment period begins; otherwise the student pays the total interest which does not exceed 7% per year. Repayment period which starts a year after graduation, or upon withdrawal from the institution, is 5 - 10 years. Students are not "means-tested" except to select those who have interest forgiveness during college attendance. Longer repayment periods and graduated repayments to replace the equal installment payments are suggestions for changing the Guaranteed Student Loans Plan.

## D. Specific University Sponsored Plans

### a. Yale Tuition Postponement Plan 1974-75

The Yale Tuition Postponement Plan allows students to defer payments for tuition, room and board fees in return for an obligation to repay Yale 0.4% of their annual adjusted gross income per $1 000, deferred over a term not to exceed 35 years. The borrower's obligation terminates at 35 years or earlier if he has repaid at least his principal and his cohort has repaid its total debt at the break-even rate of return. An individual borrower can also withdraw with honor, if his accumulated repayments equal 150% of his loan plus a break-even finance charge based on Yale's borrowing and administrations costs. The participant is entitled to deduct his entire annual payment as interest on his federal income tax return once he has repaid his principal and insurance premiums.

The Yale plan incorporates a finance charge to students which is a floating interest rate tied to Yale's own cost of borrowing and designed to protect Yale against the risk of borrowing short to lend long. Since its costs of borrowing have substantially increased, the interest rate has become less favorable to students than that of the Guaranteed Student Loan Plan, which maintains its interest charge at a maximum of 7%. For 1974-75, Yale joined its plan with the GSLP thus allowing students to take advantage of the lower federal rate of interest. Any undergraduate eligible for a public loan may borrow up to $1 900, and during the first year at Yale may convert to the Yale plan, any or all public loans taken through Yale during, or after 1974-75. When a student signs the contract to convert to the plan he agrees to make payments to the University and the latter in turn then makes conventional payments on the public loans.

b. The Duke University Plan

Undergraduates are elibible to defer from $500 - $1 000 worth of tuition in return for an obligation to repay 0.36% of their incomes. The borrower's obligation terminates whenever accumulated repayments have discharged debt at an exit interest rate of 8%; otherwise, the repayment obligation terminates at 30 years. The Duke Plan offers separate plans to the schools of law, business and medicine. Each school offers terms based on the expected incomes of its graduates and currently the medical school is able to offer the most attractive combination of maximum term repayment rates and exit interest rates.

c. York (Toronto) MBA Plan

Since 1968-69 the Toronto-Dominion Bank on York University campus has provided loans to business administration students. The loans are restricted to students enrolled in the second year of an MBA program and the maximum is $2 000 for single students and $3 000 for married students. The borrower pays the monthly interest while still in the MBA program, and repayments begin six months after graduating or leaving the program. Total repayment must be within four and one half years at the prime interest rate plus ½%. The University provides a partial guarantee on loans as well as handling much of the preliminary administration. At present, the University carries the burden of legal fees and unpaid interest as well as a percentage of the principal.

# APPENDIX S

## OUTCOME VARIABLES AND MEASURES*

### STUDENT GROWTH AND DEVELOPMENT

A. Student Knowledge and Skills Development
Measures and procedures concerning student understanding, competencies, and attitudes relative to bodies of facts and principles and use of their intellectual and physical abilities.

B. Student Educational Career Development
Measures and procedures concerning student attitudes and success relative to certain academic pursuits, e.g., student educational degree aspirations and attainments.

C. Student Educational Satisfaction
Measures and procedures concerning the satisfaction of students about the knowledge and skills they have acquired and their progress toward their educational and occupational career objectives.

D. Student Occupational Career Development
Measures and procedures concerning student attitudes and success relative to certain occupational goals and their job performance.

E. Student Personal Development**
Information about changes in students concerning the growth and maintenance of their personal life, e.g., their ability to adapt to new situations, their self-concept.

F. Student Social/Cultural Development***
Information about student abilities and attitudes in dealing with people and their interest in cultural activities.

### NEW KNOWLEDGE AND ART FORMS

G. Development of New Knowledge
Measures and procedures concerning forms of new knowledge developed, applied, and reorganized by an institution's programs and its faculty, staff, and students (current and former).

H. Development of Art Forms**
Measures and procedures concerning forms of art, e.g., a musical score, a play, a sculpture, created by an institution's programs and its faculty, staff, and students (current and former).

### COMMUNITY IMPACT

I. Community Impact: Education
Measures and procedures concerning the attitudes and success of non-degree/diploma/certificate participants relative to their acquisition of knowledge and skills, personal and social development, and occupational career goals and performance.

J. Community Impact: Service
Measures and procedures concerning the impact of the opportunities and services provided by the institution and received by the community, e.g., agricultural extension services, cultural and recreational opportunities.

K. Community Impact: Economic
Measures and procedures concerning the impact of an institution's programs and its faculty, staff, and students (current and former) on the financial helath and manpower supply of the community (local, state, or national).

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*Source: Sidney S. Micek, Allan L. Service and Yong S. Lee, Outcome Measures and Procedures Manual: Field Review Edition, (Boulder, Colorado: National Center for Higher Education Management Systems at Western Interstate Commission for Higher Education, May 1975).

**In this version of the Manual there are no measures and procedures presented for three categories: Student Personal Development, Student Social/Cultural Development, and Development of Art Forms.

# APPENDIX T

## AGREED MEASURES OF OUTCOMES*

1. The number of program completers for the previous year, by type of certificate or degree awarded and field of study.
2. The number of students who left the institution in the previous year prior to program completion, by type of certificate or degree sought and by their status at exit.
3. The time elapsed between entering the institution and program completion.
4. Whether the student transferred credits from another institution.
5. The number of terms spent in completing the program, full-time and part-time.
6. The cumulative grade-point average of program completers.
7. The number of program completers seeking a full-time job.
8. The number of program completers securing a full-time job and
    a. the type of job.
    b. the perceived permanence and career potential of the job.
    c. the starting salary or wage.
    d. the relation of the job to the field of study.
9. The long-run career expectations of program completers.
10. The number of program completers applying for admission to another degree program and
    a. the type of degree sought and field of study.
    b. the number of applicants who have been admitted.
11. The long-run educational intentions of program completers with respect to type of degree and field of study.
12. Program completers' perceptions of the institution's contribution to their progress, and the importance of that progress, in six areas of potential growth:
    a. Intellectual growth
    b. Social growth
    c. Aesthetic and cultural growth
    d. Educational growth
    e. Vocational and professional growth.
    f. Personal growth.

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*Source: Maureen Byers, Information Exchange Procedures Outcomes Study Procedures, (Boulder, Colorado: National Center for Higher Education Management Systems at Western Interstate Commission for Higher Education, 1975).

# APPENDIX U

# SUPPORTING INFORMATION FOR THE ANALYSIS OF SPECIFIC ALTERNATIVES

## TABLE I

## MISSISSIPPI APPLICATION DETAILED APPLICATION OF THE FORMULA TO THE UNIVERSITIES SECTOR

1974-75

($'000)

| INSTITUTION | GENERATED EXPENSES | FACULTY OF MEDICINE EXPENSES[a] | CALCULATED INSTRUCTIONAL BASE | EDUCATION AND GENERAL REQUIREMENT | REVENUES | REQUIREMENT LESS REVENUES | DERIVED GRANT | ACTUAL GRANT | PERCENTAGE CHANGE |
|---|---|---|---|---|---|---|---|---|---|
| | | | | VARIATION 1[b] | | | | | |
| The University of Alberta | 45 413 | 5 906 | 51 319 | 93 307 | 11 213 | 82 084 | 71 491 | 66 672 | + 7.23 |
| The University of Calgary | 19 245 | 3 255 | 22 500 | 40 909 | 6 051 | 34 858 | 30 356 | 34 439 | -11.86 |
| The University of Lethbridge | 3 225 | - | 3 225 | 6 450 | 740 | 5 710 | 4 973 | 5 709 | -12.89 |
| TOTAL SECTOR | 67 883 | 9 161 | 77 044 | 140 666 | 18 004 | 122 662 | 106 820 | 106 820 | |
| | | | | VARIATION 2[c] | | | | | |
| The University of Alberta | 45 413 | 5 906 | 51 319 | 84 113 | 11 213 | 72 900 | 71 315 | 66 672 | + 6.96 |
| The University of Calgary | 19 245 | 3 255 | 22 500 | 36 885 | 6 051 | 30 834 | 30 163 | 34 439 | -12.42 |
| The University of Lethbridge | 3 225 | - | 3 225 | 6 201 | 740 | 5 461 | 5 342 | 5 709 | - 6.43 |
| TOTAL SECTOR | 67 883 | 9 161 | 77 044 | 127 199 | 18 004 | 109 195 | 106 820 | 106 820 | |
| | | | | VARIATION 3[d] | | | | | |
| The University of Alberta | 52 391 | 5 906 | 58 297 | 106 645[e] | 37 326 | 69 319 | 70 486 | 66 672 | + 5.72 |
| The University of Calgary | 22 202 | 3 255 | 25 457 | 46 570[e] | 16 299 | 30 271 | 30 781 | 34 439 | -10.62 |
| The University of Lethbridge | 3 225 | - | 3 225 | 6 201 | 740 | 5 461 | 5 553 | 5 709 | - 2.73 |
| TOTAL SECTOR | 77 818 | 9 161 | 86 979 | 159 416 | 54 365 | 105 051 | 106 820 | 106 820 | |

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[a] Excludes Faculty of Medicine expenses.

[b] Mississippi percentages used for instructional base.

[c] Alberta percentages used for instructional base.

[d] Alberta percentages used for instructional base and CAUBO adjustment included.

[e] Includes 19 percent of instructional base for research.

## TABLE 2

## MISSISSIPPI APPLICATION
## CALCULATED RATES PER COURSE ENROLEE FOR INSTITUTIONAL GROUP I
## 1974-75

(Dollars per Course Enrolee)

| FACULTY/DEPARTMENT | LOWER | UPPER | GRADUATE | TOTAL |
|---|---|---|---|---|
| AGRICULTURE AND FORESTRY | | | | |
| Agriculture Economics | 552 | 909 | 1 983 | 1 039 |
| Agriculture Engineering | 1 222 | 1 593 | 4 091 | 1 744 |
| Animal Science | 563 | 1 258 | 5 794 | 1 785 |
| Entomology | 1 247 | 1 500 | 1 250 | 1 378 |
| Food Science | 600 | 1 800 | 1 045 | 1 187 |
| Forest Science | - | 567 | - | 567 |
| Plant Science | - | 1 801 | 3 419 | 2 073 |
| Soil Science | 567 | 1 026 | 5 364 | 1 026 |
| TOTAL AGRICULTURE AND FORESTRY | 1 047 | 1 223 | 2 641 | 1 329 |
| ARTS & SCIENCE | | | | |
| Anthropology/Archaeology | 105 | 325 | 1 852 | 296 |
| Biology | 372 | 459 | 1 549 | 472 |
| Chemistry | 629 | 914 | 1 048 | 741 |
| Classics | 234 | 609 | 2 857 | 380 |
| Comparative Literature/English | 273 | 321 | 2 105 | 330 |
| Computing Science/Mathematics | 281 | 417 | 1 177 | 359 |
| Economics | 162 | 269 | 1 604 | 241 |
| Geography | 237 | 258 | 2 403 | 370 |
| Geology | 399 | 569 | 1 270 | 606 |
| Germanic & Slavic Studies | 633 | 692 | 1 337 | 715 |
| History | 214 | 364 | 2 556 | 350 |
| Linguistics | 251 | 982 | 6 333 | 623 |
| Philosophy | 347 | 431 | 2 000 | 451 |
| Physics | 743 | 945 | 1 754 | 890 |
| Political Science | 171 | 390 | 2 469 | 374 |
| Psychology | 110 | 284 | 2 792 | 275 |
| Religious Studies | 215 | 690 | - | 478 |
| Romance Studies | 542 | 594 | 1 269 | 594 |
| Sociology | 78 | 195 | 3 737 | 190 |
| Subtotal Arts & Science | 314 | 401 | 1 724 | 411 |
| Art | 381 | 413 | 1 187 | 465 |
| Drama | 383 | 565 | 1 845 | 567 |
| Music | 361 | 612 | 857 | 514 |
| TOTAL ARTS & SCIENCE | 312 | 416 | 1 673 | 419 |
| BUSINESS/COMMERCE | 188 | 225 | 893 | 237 |
| COLLEGE ST. JEAN | 853 | 968 | - | 896 |
| DENTISTRY | 1 250 | 1 274 | 8 000 | 1 3[illegible]5 |
| DENTAL HYGIENE | 447 | 639 | - | 554 |
| EDUCATION | | | | |
| Administration | 435 | 356 | 820 | 515 |
| Curriculum & Instruction | 401 | 368 | 877 | 408 |
| Foundations | 202 | 273 | 1 574 | 304 |
| Psychology | 224 | 263 | 1 159 | 381 |
| TOTAL EDUCATION | 344 | 333 | 906 | 396 |
| ENGINEERING | 539 | 717 | 1 237 | 810 |
| ENVIRONMENTAL DESIGN | - | - | 1 941 | 1 941 |
| HOUSEHOLD ECONOMICS | 607 | 554 | 966 | 589 |
| LAW | 99 | 226 | - | 223 |
| LIBRARY SCIENCE | - | 338 | 3 071 | 406 |
| NURSING | 446 | 874 | - | 781 |
| PHARMACY | 516 | 482 | 1 657 | 580 |
| PHYSICAL EDUCATION | 214 | 306 | 1 159 | 271 |
| REHABILITATION MEDICINE | 335 | 352 | 6 333 | 375 |
| SOCIAL WELFARE | 149 | 638 | 951 | 581 |
| TOTAL FACULTIES AND SCHOOLS | 332 | 442 | 1 337 | 453 |

## TABLE 3

## MISSISSIPPI APPLICATION
## CALCULATED RATES PER COURSE ENROLEE
## FOR INSTITUTIONAL GROUP III

1974-75

(Dollars per Course Enrolee)

| FACULTY/DEPARTMENT | LOWER | UPPER | TOTAL |
|---|---|---|---|
| ARTS & SCIENCE | | | |
| Anthropology | 297 | 1 000 | 376 |
| Biology | 522 | 837 | 604 |
| Chemistry | 693 | 1 261 | 818 |
| Economics | 193 | 1 278 | 285 |
| English | 388 | 1 291 | 493 |
| Geography | 335 | 892 | 455 |
| History | 485 | 1 759 | 622 |
| Mathematics | 703 | 2 250 | 954 |
| Modern Languages | 559 | 1 789 | 704 |
| Philosophy | 650 | 2 889 | 783 |
| Physical Education | 356 | 2 364 | 416 |
| Physics | 944 | 1 960 | 1 165 |
| Political Science | 263 | 1 484 | 397 |
| Psychology | 174 | 783 | 292 |
| Sociology | 219 | 1 122 | 366 |
| Subtotal Arts & Science | 370 | 1 209 | 493 |
| Art | 298 | 1 359 | 455 |
| Drama | 228 | 2 500 | 314 |
| Music | 795 | 2 563 | 1 096 |
| TOTAL ARTS & SCIENCE | 368 | 1 270 | 498 |
| COOPERATIVE STUDY | - | 5 077 | 5 077 |
| EDUCATION | - | 807 | 807 |
| TOTAL FACULTIES AND SCHOOLS | 366 | 1 071 | 549 |

## TABLE 4

## MISSISSIPPI APPLICATION
## USE OF CAUBO DATA FOR ADJUSTMENT OF THE FORMULA

## 1974-75

Variation 3 in the application of the Mississippi Universities formula attempts to remove the effects of non-comparable accounting practices between The University of Alberta and The University of Calgary, the two universities included in Group I.

STEP 1

Adjust instructional base to reflect CAUBO accounting procedures rather than university financial statement information.

a) For each university, determine relationship between CAUBO instructional expenses and financial statement information.

| INSTITUTION | FINANCIAL STATEMENT EXPENSES | MEDICINE EXPENSES | TOTAL EXPENSES | INSTRUCTIONAL EXPENSES PER CAUBO | RATIO CAUBO TO TOTAL EXPENSE |
|---|---|---|---|---|---|
| The University of Alberta | 44 637 | 5 906 | 50 543 | 57 853 | 1.1446 |
| The University of Calgary | 20 030 | 3 255 | 23 285 | 27 311 | 1.1729 |

b) Calculate averages weighted by the number of course enrolees to be used to adjust the instructional "base."

| INSTITUTION | TOTAL COURSE ENROLEES[a] | RATIO CAUBO TO TOTAL EXPENSES | PRODUCT |
|---|---|---|---|
| The University of Alberta | 97 040 | 1.1446 | 111 072 |
| The University of Calgary | 45 721 | 1.1729 | 53 626 |
| | 142 761 | | 164 698 |

Therefore, 1.15366 is the weighted average of expenditure increase per course enrolee.

c) Apply this ratio to the instructional "base" determined by application of the formula.

| INSTITUTION | INSTRUCTIONAL BASE | RATIO | PRODUCT | MEDICINE | NEW INSTRUCTIONAL BASE |
|---|---|---|---|---|---|
| The University of Alberta | 45 413 | 1.15366 | 52 391 | 5 906 | 58 297 |
| The University of Calgary | 19 245 | 1.15366 | 22 202 | 3 255 | 25 457 |

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[a] Excludes course enrolees not included in the formula application.

## MISSISSIPPI APPLICATION
## USE OF CAUBO DATA FOR ADJUSTMENT OF THE FORMULA (Continued)
## 1974-75

### STEP 2

Using CAUBO data, calculate average percentages to be used in determining total grants for each university, i.e., percentages corresponding to Mississippi's 55 percent Instruction, 6 percent Research, and 28 percent Revenues.

CAUBO EXPENSES AND REVENUES
($'000)

| | EXPENSES | | | REVENUES | |
|---|---|---|---|---|---|
| INSTITUTION | INSTRUCTION | SPONSORED RESEARCH | TOTAL | PROVINCIAL OPERATING GRANT | TOTAL |
| The University of Alberta | 57 853 | 11 915 | 104 374 | 66 672 | 104 446 |
| The University of Calgary | 27 311 | 4 687 | 51 950 | 34 439 | 51 158 |
| TOTAL | 85 164 | 16 602 | 156 324 | 101 111 | 155 604 |

Total expenses less sponsored research expenses = 139 722

Total operating revenues less provincial operating grants = 54 493

Instruction expenses = 61 percent of total expenses.

Sponsored research expenses = 19 percent of total expenses.

Operating revenues less provincial operating grants = 35 percent of total expenses.

### STEP 3

Determine grant allocation based on above adjustments using Mississippi Universities formula.

| | UNIVERSITY OF ALBERTA | UNIVERSITY OF CALGARY |
|---|---|---|
| Instructional Base | 58 297 | 25 457 |
| Other Institutional Costs | 37 272 | 16 276 |
| Research | 11 076 | 4 837 |
| TOTAL EDUCATION AND GENERAL REQUIREMENTS | 106 645 | 46 570 |
| Less Revenues | 37 326 | 16 299 |
| TOTAL REQUIREMENTS LESS REVENUES | 69 319 | 30 271 |

## TABLE 5

## TENNESSEE APPLICATION
## BASES FOR DISTRIBUTION IN CATEGORIES

| INSTITUTION | INSTRUCTION[a] ($'000) | LIBRARY[a] ($'000) | RESEARCH[b] ($'000) | PLANT MAINTENANCE[c] (Square Feet) (000) | OTHER[b] ($'000) |
|---|---|---|---|---|---|
| The University of Alberta | 18 995 | 5 072 | 7 608 | 3 021 | 20 313 |
| The University of Calgary | 7 952 | 2 233 | 2 967 | 1 760 | 13 145 |
| TOTAL | 26 947 | 7 305 | 10 575 | 4 781 | 33 458 |

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[a] Projected expenditures 1973-74.

[b] Actual expenditures 1972-73.

[c] Assignable square feet in non-residential buildings 1972-73.

## TABLE 6

## TENNESSEE APPLICATION
## DERIVED GRANTS BY CATEGORY
## 1973-74

($'000)

| INSTITUTION | INSTRUCTION | LIBRARY | RESEARCH | PLANT MAINTENANCE | OTHER | TOTAL |
|---|---|---|---|---|---|---|
| The University of Alberta | 19 271 | 4 533 | 6 576 | 6 033 | 17 638 | 54 051 |
| The University of Calgary | 8 067 | 1 995 | 2 564 | 3 515 | 11 414 | 27 555 |
| TOTAL | 27 338 | 6 528 | 9 140 | 9 548 | 29 052 | 81 606 |

# TABLE 7

## TENNESSEE APPLICATION
## CALCULATED RATES PER COURSE ENROLEE
## 1972-73

(Dollars per Course Enrolee)

| FACULTY/DEPARTMENT | INSTRUCTION EXPENSES | | | | LIBRARY EXPENSES[a] | | | |
|---|---|---|---|---|---|---|---|---|
| | LOWER | UPPER | GRADUATE | TOTAL | LOWER | UPPER | GRADUATE | TOTAL |
| AGRICULTURE AND FORESTRY | | | | | | | | |
| Dean's Office | 8 | 7 | 7 | 7 | 185 | 150 | - | 165 |
| Agriculture Economics | 46 | 377 | 1 462 | 493 | 3 | 25 | 98 | 33 |
| Agriculture Engineering | 937 | 479 | 1 727 | 673 | 144 | 74 | 266 | 104 |
| Animal Science | 58 | 342 | 3 634 | 586 | 3 | 17 | 185 | 30 |
| Entomology | 507 | 287 | 4 116 | 843 | 73 | 41 | 595 | 122 |
| Food Science | 84 | 595 | 1 541 | 520 | 8 | 54 | 140 | 47 |
| Forest Science | - | 313 | - | 313 | - | 95 | - | 95 |
| Plant Science | 70 | 448 | 5 921 | 865 | 5 | 30 | 391 | 57 |
| Soil Science | 492 | 293 | 2 136 | 507 | 14 | 8 | 60 | 14 |
| TOTAL AGRICULTURE AND FORESTRY | 135 | 341 | 2 635 | 522 | 64 | 45 | 201 | 64 |
| ARTS & SCIENCE | | | | | | | | |
| Anthropology | 51 | 83 | 1 420 | 95 | 22 | 36 | 622 | 41 |
| Archaeology | 98 | 179 | 1 160 | 233 | 22 | 40 | 262 | 52 |
| Biology | 134 | 207 | 1 192 | 230 | 29 | 38 | 247 | 46 |
| Chemistry | 148 | 274 | 1 663 | 304 | 13 | 30 | 162 | 30 |
| Classics | 75 | 168 | 6 187 | 184 | 41 | 94 | 3 550 | 104 |
| Computing Science/Mathematics | 86 | 159 | 1 239 | 159 | 21 | 35 | 236 | 35 |
| Economics | 70 | 129 | 1 692 | 143 | 22 | 37 | 407 | 40 |
| English | 133 | 151 | 1 204 | 175 | 52 | 64 | 594 | 74 |
| Geography | 74 | 177 | 1 381 | 216 | 17 | 41 | 323 | 51 |
| Geology | 111 | 158 | 862 | 247 | 24 | 34 | 183 | 53 |
| Germanic & Slavic Studies | 252 | 291 | 882 | 331 | 182 | 152 | 680 | 217 |
| History | 166 | 140 | 1 190 | 182 | 139 | 116 | 1 221 | 159 |
| Linguistics | 196 | 223 | 1 142 | 281 | 41 | 43 | 167 | 52 |
| Philosophy | 187 | 180 | 1 352 | 259 | 82 | 89 | 537 | 113 |
| Physics | 174 | 490 | 2 587 | 406 | 17 | 24 | 152 | 27 |
| Political Science | 191 | 104 | 1 004 | 182 | 78 | 35 | 392 | 69 |
| Psychology | 92 | 92 | 985 | 127 | 24 | 26 | 259 | 34 |
| Romance Studies | 256 | 173 | 1 417 | 302 | 138 | 80 | 878 | 166 |
| Sociology | 43 | 66 | 1 078 | 77 | 15 | 21 | 308 | 24 |
| Subtotal Arts & Science | 119 | 158 | 1 338 | 195 | 37 | 45 | 369 | 57 |
| Art | 202 | 162 | 400 | 198 | 60 | 51 | 120 | 61 |
| Drama | 135 | 166 | 659 | 184 | 48 | 56 | 236 | 64 |
| Music | 136 | 276 | 686 | 224 | 51 | 96 | 318 | 83 |
| TOTAL ARTS & SCIENCE | 122 | 161 | 1 250 | 195 | 39 | 47 | 350 | 59 |
| BUSINESS/COMMERCE | 182 | 74 | 1 056 | 128 | 37 | 24 | 165 | 31 |
| COLLEGE ST. JEAN | 456 | 448 | - | 452 | - | - | - | 24[b] |
| DENTAL HYGIENE | 183 | 351 | - | 255 | 9 | 18 | - | 13 |
| DENTISTRY | 421 | 517 | 3 428 | 546 | 12 | 14 | 96 | 15 |
| EDUCATION | | | | | | | | |
| Administration | 175 | 148 | 174 | 283 | 32 | 28 | 107 | 54 |
| Curriculum & Instruction | 144 | 198 | 1 177 | 234 | 109 | 60 | 566 | 98 |
| Foundations | 164 | 84 | 1 003 | 121 | 31 | 23 | 297 | 32 |
| Psychology | 98 | 202 | 787 | 287 | 10 | 28 | 106 | 38 |
| TOTAL EDUCATION | 140 | 173 | 822 | 234 | 72 | 43 | 224 | 84 |
| ENGINEERING | 113 | 171 | 850 | 362 | 24 | 25 | 81 | 41 |
| ENVIRONMENTAL DESIGN | - | - | 734 | 734 | - | - | 55 | 55 |
| HOUSEHOLD ECONOMICS | 271 | 299 | 1 747 | 323 | 50 | 55 | 324 | 60 |
| LAW[c] | - | 76 | - | 76 | - | 96 | - | 96 |
| LIBRARY SCIENCE | - | 121 | 3 319 | 152 | - | 108 | 2 977 | 136 |
| NURSING | 322 | 453 | - | 419 | 64 | 88 | - | 82 |
| PHARMACY | 594 | 159 | 3 212 | 300 | 51 | 14 | 274 | 26 |
| PHYSICAL EDUCATION | 63 | 80 | 952 | 89 | 19 | 27 | 134 | 26 |
| REHABILITATION MEDICINE | 198 | 164 | 973 | 174 | 29 | 24 | 143 | 26 |
| SOCIAL WELFARE | 33 | 144 | 760 | 227 | 7 | 30 | 158 | 47 |
| TOTAL FACULTIES AND SCHOOLS | 129 | 164 | 1 092 | 213 | 40 | 43 | 242 | 58 |

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[a] Library Expenses are distributed in proportion to Instruction Expenses whenever possible. When departmental and/or level distribution was not possible, a ratio was obtained using total faculty course enrolees.

[b] Dean's Office expense.

[c] Due to data limitations the totals for The University of Alberta Law Faculty are included under Upper Level.

## TABLE 8

## FLORIDA APPLICATION
## PLANT MAINTENANCE AND FTE FACULTY BASES

| INSTITUTION | PLANT MAINTENANCE BASE[a] (000's Square Feet) | ACTUAL FTE FACULTY[b] | DERIVED FTE FACULTY BASE[b] | PERCENTAGE CHANGE (FTE FACULTY) |
|---|---|---|---|---|
| | 1972-73 | | | |
| The University of Alberta | 3 021 | 1 710.2 | 1 700.3 | - 0.58 |
| The University of Calgary | 1 760 | 853.6 | 849.4 | - 0.49 |
| The University of Lethbridge | 297 | 139.4 | 101.2 | -27.40 |
| TOTAL SECTOR | 5 078 | 2 703.2 | 2 650.9 | - 1.93 |
| | 1973-74 | | | |
| The University of Alberta | 3 021 | 1 720.8 | 1 690.0 | - 1.79 |
| The University of Calgary | 1 760 | 872.1 | 848.1 | - 2.75 |
| The University of Lethbridge | 297 | 142.4 | 104.9 | -26.33 |
| TOTAL SECTOR | 5 078 | 2 735.3 | 2 643.0 | - 3.37 |

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[a] Assignable square feet in non-residential buildings 1972-73.

[b] Excludes Faculties of Medicine.

## TABLE 9

## FLORIDA APPLICATION
## DETAILED RATIOS FOR FTE FACULTY CALCULATIONS

| | FTE FACULTY/COURSE ENROLEE | | | | RESEARCH FACULTY/ INSTRUCTION FACULTY | OTHER FACULTY/ INSTRUCTION FACULTY |
|---|---|---|---|---|---|---|
| | LOWER | UPPER | GRADUATE | TOTAL | | |
| AGRICULTURE & FORESTRY | .0036 | .0095 | .0733 | .0145 | .83 | .90 |
| ARTS & SCIENCE | .0139 | .0075 | .0570 | .0130 | .29 | .17 |
| BUSINESS/COMMERCE | .0213 | .0046 | .0324 | .0084 | .23 | .13 |
| DENTISTRY & DENTAL HYGIENE | .0093 | .0163 | .1100 | .0162 | .15 | .56 |
| EDUCATION | .0134 | .0112 | .0377 | .0145 | .17 | .27 |
| ENGINEERING | .0218 | .0158 | .0181 | .0174 | .30 | .30 |
| ENVIRONMENTAL DESIGN | - | - | .0250 | .0250 | .27 | .41 |
| FINE ARTS | .0138 | .0115 | .0186 | .0129 | .40 | .37 |
| HOUSEHOLD ECONOMICS | .0109 | .0118 | .0682 | .0128 | .29 | .55 |
| LAW | - | .0035 | - | .0035 | .88 | .58 |
| LIBRARY SCIENCE | - | .0049 | .1400 | .0062 | .28 | 1.22 |
| NURSING | .0516 | .0277 | - | .0338 | .04 | .23 |
| PHARMACY | .0231 | .0062 | .1268 | .0118 | .27 | .30 |
| PHYSICAL EDUCATION | .0100 | .0073 | .0709 | .0094 | .11 | .48 |
| REHABILITATION MEDICINE | .0123 | .0104 | .0600 | .0110 | .16 | .66 |
| SOCIAL WELFARE | .0037 | .0121 | .0322 | .0139 | .27 | .40 |
| COLLEGE ST. JEAN | .0223 | .0221 | - | .0222 | .04 | .54 |
| TOTAL | .0141 | .0088 | .0413 | .0130 | .27 | .25 |

## TABLE 10

## WASHINGTON APPLICATION
## DERIVED FTE FACULTY BASES

| INSTITUTION | ACTUAL FTE FACULTY | DERIVED FTE FACULTY | PERCENTAGE CHANGE |
|---|---|---|---|
| | 1972-73 | | |
| The University of Alberta | 1 710.2 | 1 722.5 | + 0.72 |
| The University of Calgary | 853.6 | 840.9 | - 1.49 |
| The University of Lethbridge | 139.4 | 104.6 | -24.96 |
| TOTAL SECTOR | 2 703.2 | 2 668.0 | - 1.30 |
| | 1973-74 | | |
| The University of Alberta | 1 720.8 | 1 685.1 | - 2.07 |
| The University of Calgary | 872.1 | 845.2 | - 3.08 |
| The University of Lethbridge | 142.4 | 109.0 | -23.46 |
| TOTAL SECTOR | 2 735.3 | 2 639.3 | - 3.51 |

### TABLE 11

### ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY APPLICATION BASES FOR THE UNIVERSITIES SECTOR[a]

($'000)

| INSTITUTION | PLANT MAINTENANCE BASE | ACADEMIC SALARIES BASE |
|---|---|---|
| 1974-75 | | |
| The University of Alberta | 8 597 | 34 977 |
| The University of Calgary | 4 147 | 17 279 |
| The University of Lethbridge | 911 | 2 882 |
| TOTAL SECTOR | 13 655 | 55 138 |
| 1975-76 | | |
| The University of Alberta | 10 601 | 40 722 |
| The University of Calgary | 4 958 | 21 029 |
| The University of Lethbridge | 1 108 | 3 612 |
| TOTAL SECTOR | 16 667 | 65 363 |

---

[a] Faculties of Medicine are excluded.

## TABLE 12

## ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY APPLICATION BASES FOR THE COLLEGES SECTOR

($'000)

| INSTITUTION | PLANT MAINTENANCE BASE | ACADEMIC SALARIES BASE |
|---|---|---|
| 1974-75 | | |
| Grande Prairie Regional College | 544 | 1 042 |
| Grant MacEwan Community College | 654 | 2 120 |
| Lethbridge Community College | 439 | 1 546 |
| Medicine Hat College | 256 | 836 |
| Mount Royal College | 900 | 3 082 |
| Red Deer College | 324 | 1 472 |
| TOTAL SECTOR | 3 117 | 10 098 |
| 1975-76 | | |
| Grande Prairie Regional College | 533 | 1 470 |
| Grant MacEwan Community College | 776 | 2 492 |
| Lethbridge Community College | 532 | 1 931 |
| Medicine Hat College | 325 | 1 091 |
| Mount Royal College | 1 128 | 3 719 |
| Red Deer College | 420 | 2 206 |
| TOTAL SECTOR | 3 714 | 12 909 |

## TABLE 13

## RATE FORMULA APPLICATION
## DERIVED INSTRUCTIONAL BASE FOR GRANT DISTRIBUTIONS[a]
## (INSTITUTIONAL GROUP III RATES APPLIED TO THE UNIVERSITY OF LETHBRIDGE)

($'000)

| INSTITUTION | 1972-73 | 1973-74 | 1974-75 |
|---|---|---|---|
| VARIATION 1: MACRO BY LEVEL | | | |
| The University of Alberta | 36 656 | 38 897 | 44 544 |
| The University of Calgary | 17 346 | 18 154 | 20 089 |
| The University of Lethbridge | 2 664 | 2 941 | 3 225 |
| TOTAL SECTOR | 56 666 | 59 992 | 67 858 |
| VARIATION 2: LEVEL AND DISCIPLINE GROUP | | | |
| The University of Alberta | 37 660 | 39 904 | 45 603 |
| The University of Calgary | 16 336 | 17 150 | 19 070 |
| The University of Lethbridge | 2 664 | 2 941 | 3 225 |
| TOTAL SECTOR | 56 660 | 59 995 | 67 898 |

---

[a] Faculties of Medicine are excluded.

## TABLE 14

## RATE FORMULA APPLICATION
## CALCULATED RATES PER COURSE ENROLEE FOR INSTITUTIONAL GROUP I

(Dollars per Course Enrolee)

| | 1972-73 | | | | 1973-74 | | | | 1974-75 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISCIPLINE GROUP | LOWER | UPPER | GRADUATE | TOTAL | LOWER | UPPER | GRADUATE | TOTAL | LOWER | UPPER | GRADUATE | TOTAL |
| AGRICULTURE AND FORESTRY | 630 | 1 225 | 5 292 | 1 572 | 782 | 1 156 | 4 754 | 1 449 | 868 | 1 012 | 4 661 | 1 329 |
| ARTS & SCIENCE | | | | | | | | | | | | |
| Arts | 196 | 246 | 2 531 | 305 | 190 | 263 | 2 998 | 307 | 196 | 280 | 3 453 | 322 |
| Biological Sciences | 325 | 379 | 2 595 | 473 | 346 | 366 | 2 639 | 471 | 349 | 426 | 2 274 | 487 |
| Computing Science/ Mathematics | 235 | 286 | 1 992 | 322 | 270 | 317 | 2 074 | 339 | 261 | 371 | 2 203 | 359 |
| Physical Sciences | 484 | 554 | 2 16[illegible] | 647 | 455 | 532 | 2 205 | 630 | 488 | 547 | 2 304 | 671 |
| Subtotal Arts & Science | 273 | 317 | 2 372 | 391 | 271 | 328 | 2 563 | 394 | 277 | 357 | 2 705 | 415 |
| Art and Drama | 296 | 401 | 1 069 | 410 | 304 | 393 | 1 477 | 430 | 369 | 449 | 1 583 | 502 |
| Music | 310 | 500 | 1 306 | 439 | 376 | 548 | 1 458 | 512 | 347 | 593 | 1 081 | 514 |
| TOTAL ARTS & SCIENCE | 272 | 336 | 2 174 | 394 | 272 | 344 | 2 396 | 399 | 279 | 375 | 2 515 | 422 |
| BUSINESS/COMMERCE | 165 | 175 | 1 651 | 226 | 206 | 181 | 2 130 | 242 | 163 | 188 | 2 114 | 237 |
| COLLEGE ST. JEAN | 761 | 651 | - | 717 | 684 | 1 039 | - | 804 | 853 | 968 | - | 896 |
| DENTISTRY & DENTAL HYGIENE | 819 | 811 | 5 600 | 863 | 1 629 | 840 | 8 059 | 966 | 1 268 | 1 141 | 6 857 | 1 218 |
| EDUCATION | 284 | 248 | 1 241 | 360 | 278 | 250 | 1 297 | 370 | 284 | 273 | 1 409 | 396 |
| ENGINEERING | 648 | 499 | 1 409 | 798 | 499 | 610 | 1 266 | 809 | 465 | 611 | 1 519 | 810 |
| ENVIRONMENTAL DESIGN | - | - | 1 451 | 1 451 | 200 | - | 1 349 | 1 235 | - | - | 1 941 | 1 941 |
| LAW[a] | - | 186 | - | 186 | - | 170 | - | 170 | - | 223 | - | 223 |
| LIBRARY SCIENCE | - | 307 | 7 600 | 378 | - | 298 | 9 000 | 341 | - | 327 | 3 500 | 406 |
| NURSING | 265 | 806 | - | 667 | 255 | 900 | - | 730 | 446 | 874 | - | 781 |
| PHARMACY | 308 | 427 | 2 585 | 487 | 279 | 409 | 2 963 | 575 | 477 | 446 | 2 076 | 580 |
| PHYSICAL EDUCATION | 203 | 195 | 2 086 | 232 | 215 | 203 | 1 643 | 241 | 195 | 283 | 2 393 | 271 |
| REHABILITATION MEDICINE | 306 | 298 | 4 200 | 316 | 279 | 296 | 7 000 | 319 | 330 | 353 | 6 333 | 375 |
| SOCIAL WELFARE | 53 | 193 | 1 874 | 448 | 70 | 486 | 628 | 436 | 144 | 603 | 1 341 | 581 |
| TOTAL FACULTIES AND SCHOOLS | 294 | 333 | 1 803 | 417 | 289 | 352 | 1 831 | 424 | 293 | 390 | 2 042 | 453 |

## TABLE 15

## RATE FORMULA APPLICATION
## CALCULATED RATES PER COURSE ENROLEE FOR INSTITUTIONAL GROUP III

(Dollars per Course Enrolee)

| | 1972-73 | | | 1973-74 | | | 1974-75 | | |
|---|---|---|---|---|---|---|---|---|---|
| DISCIPLINE GROUP | LOWER | UPPER | TOTAL | LOWER | UPPER | TOTAL | LOWER | UPPER | TOTAL |
| ARTS & SCIENCE | | | | | | | | | |
| Arts | 287 | 879 | 379 | 294 | 1 181 | 417 | 314 | 1 242 | 440 |
| Biological Sciences | 684 | 800 | 726 | 386 | 1 200 | 581 | 522 | 837 | 604 |
| Mathematics | 554 | 864 | 617 | 543 | 1 320 | 623 | 703 | 2 250 | 954 |
| Physical Sciences | 588 | 1 080 | 699 | 539 | 1 270 | 711 | 569 | 1 206 | 707 |
| Subtotal Arts & Science | 362 | 904 | 460 | 349 | 1 169 | 485 | 379 | 1 222 | 513 |
| Art and Drama | 287 | 705 | 360 | 341 | 805 | 461 | 276 | 1 465 | 415 |
| Music | 785 | 6 500 | 1 060 | 747 | 4 000 | 904 | 795 | 2 563 | 1 096 |
| TOTAL ARTS & SCIENCE | 366 | 914 | 463 | 361 | 1 143 | 493 | 377 | 1 276 | 517 |
| EDUCATION | - | 673 | 673 | - | 773 | 773 | - | 807 | 807 |
| PHYSICAL EDUCATION | 292 | 561 | 325 | 330 | 786 | 366 | 356 | 2 364 | 416 |
| TOTAL FACULTIES AND SCHOOLS | 384 | 727 | 486 | 359 | 950 | 524 | 366 | 1 071 | 549 |

---

[a] Due to data limitations, the totals for The University of Alberta Law Faculty are included under Upper Level.

## TABLE 16

## RATE FORMULA APPLICATION
## DERIVED INSTRUCTIONAL BASES FOR GRANT DISTRIBUTIONS[a]
## INSTITUTIONAL GROUP I RATES APPLIED TO
## THE UNIVERSITY OF LETHBRIDGE

($'000)

| INSTITUTION | 1972-73 | 1973-74 | 1974-75 |
|---|---|---|---|
| VARIATION 1: MACRO BY LEVEL | | | |
| The University of Alberta | 36 656 | 38 897 | 44 544 |
| The University of Calgary | 17 346 | 18 154 | 20 089 |
| The University of Lethbridge | 1 676 | 1 721 | 1 869 |
| TOTAL | 55 678 | 58 772 | 66 502 |
| VARIATION 2: LEVEL AND DISCIPLINE GROUP | | | |
| The University of Alberta | 37 760 | 39 904 | 45 603 |
| The University of Calgary | 16 336 | 17 150 | 19 070 |
| The University of Lethbridge | 1 406 | 1 455 | 1 594 |
| TOTAL | 55 402 | 58 509 | 66 267 |

---

[a] Excludes Faculties of Medicine.

## TABLE 17

## CATEGORY FORMULA APPLICATION - BASES FOR GRANT DISTRIBUTIONS[a]

($'000)

| SECTOR/INSTITUTION | PLANT MAINTENANCE BASE | DIRECT INSTRUCTION BASE[b] |
|---|---|---|
| **1974-75** | | |
| UNIVERSITIES SECTOR | | |
| The University of Alberta | 8 597 | 50 783 |
| The University of Calgary | 4 147 | 23 171[c] |
| The University of Lethbridge | 911 | 3 557 |
| TOTAL UNIVERSITIES SECTOR | 13 655 | 77 511 |
| COLLEGES SECTOR | | |
| Grande Prairie Regional College | 544 | 1 313[d] |
| Grant MacEwan Community College | 654 | 2 655 |
| Lethbridge Community College | 439 | 1 608 |
| Medicine Hat College | 256 | 725 |
| Mount Royal College | 900 | 3 342 |
| Red Deer College | 324 | 1 559 |
| TOTAL COLLEGES SECTOR | 3 117 | 11 202 |
| TOTAL SYSTEM | 16 772 | 88 713 |
| **1975-76** | | |
| UNIVERSITIES SECTOR | | |
| The University of Alberta | 10 601 | 59 443 |
| The University of Calgary | 4 958 | 28 635[c] |
| The University of Lethbridge | 1 108 | 4 665 |
| TOTAL UNIVERSITIES SECTOR | 16 667 | 92 743 |
| COLLEGES SECTOR | | |
| Grande Prairie Regional College | 533 | 1 897[d] |
| Grant MacEwan Community College | 776 | 3 570 |
| Lethbridge Community College | 532 | 1 978[e] |
| Medicine Hat College | 325 | 942 |
| Mount Royal College | 1 128 | 4 029 |
| Red Deer College | 420 | 2 350 |
| TOTAL COLLEGES SECTOR | 3 714 | 14 766 |
| TOTAL SYSTEM | 20 381 | 107 509 |

---

[a] Excludes Faculties of Medicine.

[b] Faculties and Schools Net Expenses in the universities sector. Instruction Net Expense less Library, Audio Visual, and Continuing Education in the colleges sector.

[c] Excludes expenditures funded from departmental reserves.

[d] Includes Industrial Education and "B" Budget Programs.

[e] Excludes an estimate for Continuing Education in the amount of $434 562.

## TABLE 18

## THE ELEMENTARY MODEL APPLICATION TO THE UNIVERSITIES SECTOR WEEKLY STUDENT HOURS AS THE STUDENT LOAD MEASURE DERIVED FTE FACULTY BASES[a]

| | 1972-73 | | | 1973-74 | | | 1974-75 | | |
|---|---|---|---|---|---|---|---|---|---|
| INSTITUTION | ACTUAL FTE FACULTY | DERIVED FTE FACULTY | PERCENTAGE CHANGE | ACTUAL FTE FACULTY | DERIVED FTE FACULTY | PERCENTAGE CHANGE | ACTUAL FTE FACULTY | DERIVED FTE FACULTY | PERCENTAGE CHANGE |
| VARIATION 1: MACRO | | | | | | | | | |
| The University of Alberta | 1 710.2 | 1 666.4 | - 2.56 | 1 720.8 | 1 667.9 | - 3.07 | 1 763.9 | 1 807.7 | + 2.48 |
| The University of Calgary | 853.6 | 918.8 | + 7.64 | 872.1 | 950.5 | + 8.99 | 922.5 | 924.1 | + 0.17 |
| The University of Lethbridge | 139.4 | 99.2 | -28.84 | 142.4 | 101.1 | -29.00 | 147.3 | 105.4 | -28.45 |
| TOTAL SECTOR | 2 703.2 | 2 684.4 | - 0.70 | 2 735.3 | 2 719.5 | - 0.58 | 2 833.7 | 2 837.2 | + 0.12 |
| VARIATION 2: LEVEL | | | | | | | | | |
| The University of Alberta | 1 710.2 | 1 720.1 | + 0.58 | 1 720.8 | 1 699.3 | - 1.25 | 1 763.9 | 1 829.4 | + 3.71 |
| The University of Calgary | 853.6 | 888.5 | + 4.09 | 872.1 | 941.3 | + 7.93 | 922.5 | 926.7 | + 0.46 |
| The University of Lethbridge | 139.4 | 81.7 | -41.39 | 142.4 | 82.4 | -42.13 | 147.3 | 83.7 | -43.18 |
| TOTAL SECTOR | 2 703.2 | 2 690.3 | - 0.48 | 2 735.3 | 2 723.0 | - 0.45 | 2 833.7 | 2 839.8 | + 0.22 |
| VARIATION 3: LEVEL AND DISCIPLINE GROUP | | | | | | | | | |
| The University of Alberta | 1 710.2 | 1 732.5 | + 1.30 | 1 720.8 | 1 711.3 | - 0.55 | 1 763.9 | 1 837.5 | + 4.17 |
| The University of Calgary | 853.6 | 890.3 | + 4.30 | 872.1 | 943.1 | + 8.14 | 922.5 | 919.7 | - 0.30 |
| The University of Lethbridge | 139.4 | 77.1 | -44.69 | 142.4 | 78.7 | -44.73 | 147.3 | 79.7 | -45.89 |
| TOTAL SECTOR | 2 703.2 | 2 699.9 | - 0.12 | 2 735.3 | 2 733.1 | - 0.08 | 2 833.7 | 2 836.9 | + 0.11 |
| VARIATION 4: LEVEL AND DISCIPLINE GROUP INCLUDING GRADUATE SUPERVISION | | | | | | | | | |
| The University of Alberta | 1 710.2 | 2 036.9 | +19.10 | 1 720.8 | 1 984.3 | +15.31 | 1 763.9 | 2 102.0 | +19.17 |
| The University of Calgary | 853.6 | 1 009.8 | +18.30 | 872.1 | 1 051.2 | +20.54 | 922.5 | 1 032.5 | +11.92 |
| The University of Lethbridge | 139.4 | 77.1 | -44.69 | 142.4 | 78.7 | -44.73 | 147.3 | 79.7 | -45.89 |
| TOTAL SECTOR | 2 703.2 | 3 123.8 | +15.56 | 2 735.3 | 3 114.2 | +13.85 | 2 833.7 | 3 214.2 | +13.43 |

---

[a] Excludes Faculties of Medicine and Graduate Studies.

## TABLE 19

### THE ELEMENTARY MODEL APPLICATION TO THE UNIVERSITIES SECTOR COURSE ENROLEES AS THE STUDENT LOAD MEASURE DERIVED FTE FACULTY BASES[a]

| INSTITUTION | 1972-73 ACTUAL FTE FACULTY | 1972-73 DERIVED FTE FACULTY | 1972-73 PERCENTAGE CHANGE | 1973-74 ACTUAL FTE FACULTY | 1973-74 DERIVED FTE FACULTY | 1973-74 PERCENTAGE CHANGE | 1974-75 ACTUAL FTE FACULTY | 1974-75 DERIVED FTE FACULTY | 1974-75 PERCENTAGE CHANGE |
|---|---|---|---|---|---|---|---|---|---|
| **VARIATION 1: MACRO** | | | | | | | | | |
| The University of Alberta | 1 710.2 | 1 711.2 | + 0.06 | 1 720.8 | 1 724.4 | + 0.21 | 1 763.9 | 1 843.8 | + 4.53 |
| The University of Calgary | 853.6 | 864.4 | + 1.27 | 872.1 | 864.5 | - 0.87 | 922.5 | 868.0 | - 5.91 |
| The University of Lethbridge | 139.4 | 108.3 | -22.31 | 142.4 | 107.3 | -24.65 | 147.3 | 110.7 | -24.85 |
| TOTAL SECTOR | 2 703.2 | 2 683.9 | - 0.71 | 2 735.3 | 2 696.2 | - 1.43 | 2 833.7 | 2 822.5 | - 0.40 |
| **VARIATION 2: LEVEL** | | | | | | | | | |
| The University of Alberta | 1 710.2 | 1 759.2 | + 2.87 | 1 720.8 | 1 787.7 | + 3.89 | 1 763.9 | 1 880.7 | + 6.62 |
| The University of Calgary | 853.6 | 858.6 | + 0.59 | 872.1 | 860.5 | - 1.33 | 922.5 | 863.1 | - 6.44 |
| The University of Lethbridge | 139.4 | 93.0 | -33.29 | 142.4 | 90.3 | -36.59 | 147.3 | 89.2 | -39.44 |
| TOTAL SECTOR | 2 703.2 | 2 710.8 | + 0.28 | 2 735.3 | 2 738.5 | + 0.12 | 2 833.7 | 2 833.0 | - 0.02 |
| **VARIATION 3: LEVEL AND DISCIPLINE GROUP** | | | | | | | | | |
| The University of Alberta | 1 710.2 | 1 764.0 | + 3.15 | 1 720.8 | 1 783.8 | + 3.66 | 1 763.9 | 1 891.3 | + 7.22 |
| The University of Calgary | 853.6 | 849.0 | - 0.54 | 872.1 | 865.6 | - 0.75 | 922.5 | 863.8 | - 6.36 |
| The University of Lethbridge | 139.4 | 83.4 | -40.17 | 142.4 | 81.0 | -43.12 | 147.3 | 80.7 | -45.21 |
| TOTAL SECTOR | 2 703.2 | 2 696.4 | - 0.25 | 2 735.3 | 2 730.4 | - 0.18 | 2 833.7 | 2 835.8 | + 0.07 |
| **VARIATION 4: LEVEL AND DISCIPLINE GROUP INCLUDING GRADUATE SUPERVISION** | | | | | | | | | |
| The University of Alberta | 1 710.2 | 2 068.4 | +20.94 | 1 720.8 | 2 056.8 | +19.53 | 1 763.9 | 2 155.8 | +22.22 |
| The University of Calgary | 853.6 | 968.5 | +13.46 | 872.1 | 973.7 | +11.65 | 922.5 | 976.7 | + 5.88 |
| The University of Lethbridge | 139.4 | 83.4 | -40.17 | 142.4 | 81.0 | -43.12 | 147.3 | 80.7 | -45.21 |
| TOTAL SECTOR | 2 703.2 | 3 120.3 | +15.43 | 2 735.3 | 3 111.5 | +13.75 | 2 833.7 | 3 213.2 | +13.39 |

---

[a] Excludes Faculties of Medicine and Graduate Studies.

## TABLE 20

## THE ELEMENTARY MODEL APPLICATION TO THE PUBLIC COLLEGES SECTOR WEEKLY STUDENT HOURS AS THE STUDENT LOAD MEASURE

## DERIVED FTE FACULTY BASES

| INSTITUTION | VARIATION USING UNIVERSITIES SECTOR AVERAGE | VARIATION USING UNIVERSITY OF LETHBRIDGE AVERAGE |
|---|---|---|
| Grande Prairie Regional College | 47.9 | 46.4 |
| Grant MacEwan Community College | 171.5 | 164.8 |
| Lethbridge Community College | 112.8 | 110.0 |
| Medicine Hat College | 30.9 | 29.9 |
| Mount Royal College | 194.5 | 187.1 |
| Red Deer College | 92.0 | 88.9 |
| TOTAL SECTOR | 649.6 | 627.1 |

# APPENDIX V

# CONTENTS OF FINANCIAL PLAN PROJECT PLANNING PAPERS

(Reproduced to show content, not format)

# APPENDIX V

## CONTENTS OF FINANCIAL PLAN PROJECT PLANNING PAPERS

### PLANNING PAPER ONE: A FRAMEWORK

TABLE OF CONTENTS

Page

I. INTRODUCTION ---------- 1
- A. Purpose of the Planning Paper ---------- 1
- B. Description, Aims and Desirable Features of a Financial Plan ---------- 2

II. FINANCIAL PLANNING IN ADVANCED EDUCATION ---------- 6
- A. Definition and Elaboration ---------- 6
- B. Financing Postsecondary Education in Canada -- 7
- C. Alberta Practice in Financial Planning ---------- 12
  - a. University Financing Techniques ---------- 16
  - b. Public College Financing Techniques ---------- 21
  - c. Historical Perspective of Operating Grants to Public Colleges and Universities ---------- 24
  - d. Demographic Context and Possible Student Enrolment ---------- 26

III. GENERAL ISSUES AND DIRECTIONS ---------- 30
- A. Context and Perception of Funding ---------- 32
  - a. Decision-Making Process ---------- 32
  - b. Some Views on Costs and Grants ---------- 35
  - c. Institutional Autonomy and Academic Freedom ---------- 38
  - d. Anti-Inflation Policies ---------- 39
- B. The Basis of Funding ---------- 40
  - a. Classification Structure for Institutional Activities ---------- 40
  - b. Instruction as the Basis of Funding ---------- 43
  - c. Financing Techniques ---------- 47
    - 1. Students as Recipients ---------- 49
    - 2. Institutions as Recipients ---------- 50
      - i. Incremental: Non-formula ---------- 51
      - ii. Incremental: Formula ---------- 52
      - iii. Zero-base: Non-formula ---------- 52
      - iv. Zero-base: Formula ---------- 52
  - d. "Outcomes vs. Activities" Problem ---------- 55
  - e. Cost Analysis ---------- 58
  - f. Outcome Measures ---------- 61
  - g. Student Enrolment--Projections or Forecasts? ---------- 63

IV. ISSUES AND CONCERNS CURRENT IN ALBERTA ---------- 67
- A. Management ---------- 68
  - a. Roles and Functions ---------- 68
  - b. Organizational Structures and Personnel -- 71
  - c. Accommodation of Government Policy/ Program Approach to Financing ---------- 72
  - d. Institutional Credibility with Government Departments ---------- 75
  - e. Initiative and Locus of New Program Development ---------- 75
  - f. System of Advanced Education ---------- 76
  - g. Relation to Provincially Administered Institutions ---------- 77
  - h. Financial Significance of Institutional Differences with Respect to Location and Size ---------- 77
  - i. Impact of Labor Negotiations ---------- 77
- B. Information ---------- 79
  - a. Existing vs. Future Data Base ---------- 79
  - b. Centralized vs. Decentralized Information Systems ---------- 80
  - c. Institutional or System-Wide Capacity for Institutional Research ---------- 81
  - d. The Budget Document as an Information Instrument ---------- 81
- C. Procedures/Implementation ---------- 83
  - a. Timing of Budget and Related Procedures -- 83
  - b. Accumulated Funds and Deficits ---------- 83
  - c. Special Group Funding ---------- 83
  - d. Capital Fund Considerations ---------- 84

Page

V. FINANCIAL PLANNING INFORMATION ---------- 85
- A. Data Capabilities in Universities ---------- 87
- B. Data Capabilities in Public Colleges ---------- 90
- C. Historical Data Available for Analysis of Alternative Financial Plans ---------- 93
  - a. Universities ---------- 93
  - b. Public Colleges ---------- 95

VI. ALTERNATIVES ---------- 97
- A. Present Principal Financing Techniques as Alternatives ---------- 98
  - a. Universities ---------- 98
    - 1. Strengths ---------- 99
    - 2. Weaknesses ---------- 104
  - b. Colleges ---------- 105
    - 1. Strengths ---------- 105
    - 2. Weaknesses ---------- 106
- B. Preliminary Narrowing of Alternatives ---------- 107
  - a. Students as Recipients ---------- 107
  - b. Institutions as Recipients ---------- 110

VII. QUESTIONS ---------- 114

APPENDIX A: FINANCIAL PLAN PROJECT--TERMS OF REFERENCE -- 121

APPENDIX B: CURRENT ENROLMENT UNIT WEIGHTS ---------- 123

APPENDIX C: ORIGINAL THREE-YEAR OPERATING GRANTS FOR UNIVERSITIES 1973-74 TO 1975-76 ---------- 125

APPENDIX D: PUBLIC COLLEGE BUDGET SUMMARY FOR YEAR ENDING JUNE 30, 1976 ---------- 129

APPENDIX E: ADVISORY LETTER TO PUBLIC COLLEGE SYSTEM 1975-76 FINANCIAL GUIDELINES ---------- 135

APPENDIX F: OUTCOME VARIABLES AND MEASURES ---------- 139

APPENDIX G: MEASURES OF OUTCOMES ---------- 141

LIST OF TABLES

TABLE 1: FULL-TIME ENROLMENTS IN ALBERTA POSTSECONDARY INSTITUTIONS SELECTED YEARS ---------- 13

TABLE 2: ALBERTA ADVANCED EDUCATION AND MANPOWER OPERATING EXPENDITURES - 1973-74 TO 1975-76 -- 14

TABLE 3: ANNUAL INSTITUTIONAL NET OPERATING EXPENSES AND TOTAL PROVINCIAL OPERATING GRANTS ---------- 15

TABLE 4: DOLLAR VALUE OF FORMULA GRANT PER ENROLMENT UNIT 18

TABLE 5: PERCENT DISTRIBUTION OF PROVINCIAL GRANTS TO UNIVERSITIES BY CATEGORY OF SUPPORT ---------- 22

TABLE 6: PUBLIC COLLEGES ENROLMENTS BY INSTITUTION AND PROGRAM ---------- 25

LIST OF FIGURES

FIGURE 1: UNIVERSITIES OPERATING GRANTS PER FULL-TIME STUDENT ---------- 27

FIGURE 2: PUBLIC COLLEGES OPERATING GRANTS PER FULL-TIME EQUIVALENT STUDENT ---------- 27

FIGURE 3: TOTAL FULL-TIME ENROLMENT AND PROJECTIONS IN CANADIAN POSTSECONDARY INSTITUTIONS ---------- 29

FIGURE 4: PROGRAM CLASSIFICATION STRUCTURE ---------- 45

FIGURE 5: FINANCING TECHNIQUES DIAGRAM ---------- 48

FIGURE 6: ACTIVITIES/OUTCOMES VIEW OF INSTITUTION ---------- 54

FIGURE 7: CHARACTERISTICS OF METHODS FOR ANALYSIS OF FUTURE ENROLMENT ---------- 64

FIGURE 8: FACTORS CONTRIBUTING TO THE STUDENT'S DECISION TO ENROL ---------- 65

# PLANNING PAPER TWO: A DATA BASE

## TABLE OF CONTENTS

Page

FINGERTIP STATISTICS ---------- 2
GRAPHS ---------- 4
I. INTRODUCTION ---------- 13
  A. Purposes of the Planning Paper ---------- 13
  B. Project Context of the Paper ---------- 15
  C. Organization of the Paper ---------- 16
  D. Technical Concerns Related to Data Base ---------- 17
    1. Canada Comparative Information ---------- 18
II. THE DATA BASE AND THE ALTERNATIVES ---------- 19
  A. Information Support for Formula Financing Techniques ---------- 22
  B. Information Support for Non-Formula Financing Techniques ---------- 27
III. AVAILABLE DATA RELATED TO FINANCING TECHNIQUES ---------- 29
  A. Outcomes Data ---------- 29
  B. Activities Data ---------- 34
  C. Financial Data ---------- 45
IV. FINANCIAL PLANNING DATA ---------- 49
  A. Definitions ---------- 52
  B. Series 1: Alberta Universities and Banff Centre ---------- 55
  C. Series 2: Alberta Public Colleges ---------- 135
  D. Series 3: Alberta Student Enrolment Projections ---------- 187
    1. Enrolment Projection Model: A Brief Description ---------- 189
  E. Series 4: Canada Comparative Postsecondary Information ---------- 197
V. QUESTIONS ---------- 232
APPENDIX A: FINANCIAL PLAN PROJECT TERMS OF REFERENCE ---------- 237
APPENDIX B: PROGRAM REGISTRY PROGRAM CLASSIFICATION TABLE ---------- 241
LIST OF SOURCES ---------- 249

## LIST OF TABLES

SERIES 1: ALBERTA UNIVERSITIES AND BANFF CENTRE

ENROLMENT AND ENROLMENT UNITS

TABLE 1.1: Enrolment and Enrolment Units ---------- 59
TABLE 1.2: Part-Time As a Percentage of Full-Time Enrolment ---------- 65
TABLE 1.3: Full-Time Students by Home Address within Census Division Attending Alberta Universities ---------- 66

COURSE DATA

TABLE 1.4: Course Enrolees and Number of Courses Taught ---------- 69
TABLE 1.5: Weekly Student Hours, Section Hours and Weighted Average Section Sizes ---------- 80

FINANCE

TABLE 1.6: Net Operating Expenses Faculties and Schools ---------- 95
TABLE 1.7: Net Operating Expenses Teaching Department- 98
TABLE 1.8: Instruction Net Expenses ---------- 108
TABLE 1.9: Total Net Operating Expenses ---------- 109
TABLE 1.10: Sources of Revenues ---------- 110

STAFF, SALARIES AND WORKLOAD

TABLE 1.11: Faculty Workload Indicators ---------- 113
TABLE 1.12: Full-Time Equivalent Academic Staff in Faculties and Schools ---------- 115
TABLE 1.13: Salaries per FTE Academic Staff in Faculties and Schools ---------- 117
TABLE 1.14: Full-Time Equivalent Academic Staff outside Faculties and Schools ---------- 119
TABLE 1.15: Full-Time Equivalent Support Staff ---------- 119

Page

NET EXPENSE PER WORKLOAD MEASURE

TABLE 1.16: Net Expenses per Workload Measure ---------- 123

DEGREES, CERTIFICATES AND DIPLOMAS

TABLE 1.17: Degrees, Certificates and Diplomas ---------- 127

ATHABASCA UNIVERSITY AND THE BANFF CENTRE

TABLE 1.18: Athabasca University and The Banff Centre - 131
TABLE 1.19: Athabasca University Course and Student Statistics ---------- 132
TABLE 1.20: Athabasca University Course Registrants ---------- 132
TABLE 1.21: The Banff Centre Revenues and Expenses ---------- 133
TABLE 1.22: The Banff Centre Enrolment Statistics ---------- 133

SERIES 2: ALBERTA PUBLIC COLLEGES

ENROLMENT

TABLE 2.1: Enrolment by Certification Sought ---------- 139
TABLE 2.2: Summary Full-Time Equivalent Enrolment by Program Classification ---------- 140
TABLE 2.3: Enrolment by Program Classification ---------- 142
TABLE 2.4: Full-Time Equivalent Enrolment for Regular Grant Purposes ---------- 154

COURSE DATA

TABLE 2.5: Grande Prairie Regional College Course Enrolees and Weekly Student Hours ---------- 157
TABLE 2.6: Grant MacEwan Community College Course Enrolees ---------- 158
TABLE 2.7: Grant MacEwan Community College Weekly Student Hours ---------- 159
TABLE 2.8: Lethbridge Community College Course Enrolees and Weekly Student Hours ---------- 161
TABLE 2.9: Medicine Hat College Course Enrolees ---------- 162
TABLE 2.10: Medicine Hat College Weekly Student Hours - 163
TABLE 2.11: Mount Royal College Course Enrolees ---------- 164
TABLE 2.12: Mount Royal College Weekly Student Hours -- 166
TABLE 2.13: Red Deer College Course Enrolees and Weekly Student Hours ---------- 170
TABLE 2.14: Non-Credit Instruction ---------- 171

FINANCE

TABLE 2.15: Instruction Net Expenses ---------- 175
TABLE 2.16: Net Total Operating Expenses ---------- 176
TABLE 2.17: Sources of Revenues ---------- 178

STAFF AND SALARIES

TABLE 2.18: Full- and Part-Time Staff ---------- 181
TABLE 2.19: Academic Salary Scales ---------- 182

INSTRUCTION COST PER WORKLOAD MEASURE

TABLE 2.20: Direct Instruction Cost per Workload Measure 185

SERIES 3: ALBERTA STUDENT ENROLMENT PROJECTIONS

TABLE 3.1: Demographic Data ---------- 191
TABLE 3.2: Alberta Projection Ratios ---------- 191
TABLE 3.3: Sample Outcomes of Enrolment Projection Techniques ---------- 192
TABLE 3.4: Alberta Population by Specified Age Groups and Census Division ---------- 195

SERIES 4: CANADA COMPARATIVE POSTSECONDARY INFORMATION

ENROLMENT

TABLE 4.1: Full-Time Enrolment by Type of Institution- 202
TABLE 4.2: Full-Time Enrolment by Level of Study ---------- 204
TABLE 4.3: Full-Time Enrolment by Level of Study As Percent of Relevant Age Group ---------- 206
TABLE 4.4: Full-Time Postsecondary Enrolment in Non-University Institutions ---------- 208
TABLE 4.5: Part-Time University Enrolment ---------- 210

FINANCE

TABLE 4.6: Fiscal Transfers for Postsecondary Education 213
TABLE 4.7: Operating and Capital Expenditures on Education by Level ---------- 214
TABLE 4.8: Operating and Capital Expenditures on Education in Relation to Socioeconomic Indicators ---------- 216
TABLE 4.9: Operating and Capital Expenditures on Postsecondary Education in Relation to Socioeconomic Indicators ---------- 217

SERIES 4: (continued) **Page**

- TABLE 4.10: Operating and Capital Expenditures on Postsecondary Education by Source of Funds ---------- 218
- TABLE 4.11: Instruction Expenses As Percent of Total Operating Expenses ---------- 220
- TABLE 4.12: University Operating Expenditures per Full-Time Equivalent Student ---------- 221

STAFF AND SALARIES

- TABLE 4.13: Full-Time Teachers in Universities, Percent with Doctorates and Median Salaries ----- 225
- TABLE 4.14: Median Salaries of Full-Time Academic Staff, Selected Universities ---------- 226

DEGREES, CERTIFICATES AND DIPLOMAS

- TABLE 4.15: Degrees, Diplomas and Certificates Awarded by Universities ---------- 229
- TABLE 4.16: Diplomas and Certificates Awarded by Postsecondary Non-University Institutions --- 230

## LIST OF FIGURES

- FIGURE 1: PROVINCIAL GOVERNMENT OPERATING GRANTS TO ALBERTA UNIVERSITIES ---------- 4
- FIGURE 2: PROVINCIAL GOVERNMENT OPERATING GRANTS TO ALBERTA PUBLIC COLLEGES ---------- 5
- FIGURE 3: FTE STUDENTS IN THREE ALBERTA UNIVERSITIES --- 6
- FIGURE 4: FTE STUDENTS IN ALBERTA PUBLIC COLLEGES ------ 7
- FIGURE 5: SOURCES OF REVENUES, ALBERTA UNIVERSITIES ---- 8
- FIGURE 6: SOURCES OF REVENUES, ALBERTA PUBLIC COLLEGES - 10
- FIGURE 7: INFORMATION CLASSES CORRESPONDING TO ALTERNATIVE FINANCING TECHNIQUES ---------- 21
- FIGURE 8: HIERARCHY OF INFORMATION SYSTEMS ---------- 36
- FIGURE 9: FULL-TIME POSTSECONDARY ENROLMENT IN CANADA BY LEVEL OF STUDY ---------- 201

## PLANNING PAPER THREE: REFERENCE GROUP STUDY OF ALTERNATIVES

## TABLE OF CONTENTS

### I. REFERENCE GROUP MEETING TWO

- STUDY OF MACRO INDICATORS AND ALTERNATIVE FINANCING TECHNIQUES ---------- 1
- MACRO INDICATORS - UNIVERSITIES SECTOR ---------- 2
- MACRO INDICATORS RATIOS TO SECTOR AVERAGE - UNIVERSITIES SECTOR ---------- 3
- MACRO INDICATORS - COLLEGES SECTOR ---------- 4
- MACRO INDICATORS RATIOS TO SECTOR AVERAGES - COLLEGES SECTOR ---------- 5
- MACRO INDICATORS - SYSTEM ---------- 6
- MACRO INDICATORS RATIOS TO SYSTEM AVERAGE ---------- 7

GRANT DISTRIBUTIONS - UNIVERSITIES SECTOR

- Outcomes Side of ICLM Example ---------- 8
- Grants Adjusted for Medicine ---------- 8

GRANT DISTRIBUTIONS - COLLEGES SECTOR

- Outcomes Side of ICLM Example ---------- 9

GRANT DISTRIBUTIONS - SYSTEM

- Outcomes Side of ICLM Example ---------- 10

GRANT DISTRIBUTIONS - UNIVERSITIES SECTOR

- Activities Side of ICLM Example ---------- 11

GRANT DISTRIBUTIONS - COLLEGES SECTOR

- Activities Side of ICLM Example ---------- 11

GRANT DISTRIBUTIONS - SYSTEM

- Activities Side of ICLM Example ---------- 12
- REFERENCE GROUP NOTES - ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY NOTES ---------- 13

**Page**

- ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA APPLIED TO UNIVERSITIES SECTOR ---------- 14

ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA APPLIED TO COLLEGES SECTOR

- Variation 1: Regular and Program Grants ---------- 15
- Variation 2: Regular and Program Grants and Canada Manpower Funding ---------- 16
- Variation 3: Regular and Program Grants, Academic Salaries Adjusted ---------- 17
- ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA APPLIED TO SYSTEM ---------- 18
  - Ratios of Operating Expense Categories to Academic Salaries ---------- 19
- REFERENCE GROUP NOTES - ENROLMENT UNIT FORMULA APPLICATION FOR COLLEGES ---------- 20
- UNIVERSITIES ENROLMENT UNIT FORMULA APPLIED TO COLLEGES SECTOR ---------- 21
- UNIVERSITIES ENROLMENT UNIT FORMULA APPLIED TO SYSTEM ---------- 22
- RANKING OF CRITERIA AND PRELIMINARY EVALUATION OF ALTERNATIVES ---------- 23
- COMPILATION OF CRITERIA FOR FINANCING TECHNIQUES PROPOSED BY REFERENCE GROUP ---------- 25
  - Group One ---------- 25
  - Group Two ---------- 26
  - Group Three ---------- 27
  - Group Four ---------- 28
  - Group Five ---------- 29
  - Group Six ---------- 30
- TRANSPARENCIES ---------- 31

### II. REFERENCE GROUP MEETING THREE

- RANKING OF CRITERIA ---------- 39
- ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA APPLIED TO UNIVERSITIES SECTOR ---------- 42
- ONTARIO COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S FORMULA APPLIED TO COLLEGES SECTOR ---------- 43
- PLANT MAINTENANCE BASE USED IN COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S APPLICATIONS ---------- 44
  - The University of Alberta ---------- 45
  - The University of Calgary ---------- 46
  - The University of Lethbridge ---------- 47
  - Grande Prairie Regional College ---------- 48
  - Grant MacEwan Community College ---------- 49
  - Lethbridge Community College ---------- 50
  - Medicine Hat College ---------- 51
  - Mount Royal College ---------- 52
  - Red Deer College ---------- 53
- ACADEMIC SALARIES BASE USED IN COLLEGES OF APPLIED ARTS AND TECHNOLOGY'S APPLICATIONS ---------- 54
  - The University of Alberta ---------- 55
  - The University of Calgary ---------- 56
  - The University of Lethbridge ---------- 57
  - Grande Prairie Regional College ---------- 58
  - Grant MacEwan Community College ---------- 59
  - Lethbridge Community College ---------- 60
  - Medicine Hat College ---------- 61
  - Mount Royal College ---------- 62
  - Red Deer College ---------- 63
- REGULAR AND PROGRAM GRANTS AND CANADA MANPOWER AND PRIORITY EMPLOYMENT TRAINING PROGRAM FUNDING ----- 64
  - The University of Alberta ---------- 65
  - The University of Calgary ---------- 65
  - The University of Lethbridge ---------- 65
  - Grande Prairie Regional College ---------- 66
  - Grant MacEwan Community College ---------- 67
  - Lethbridge Community College ---------- 68
  - Medicine Hat College ---------- 69
  - Mount Royal College ---------- 70
  - Red Deer College ---------- 71

Page

THE ELEMENTARY MODEL ---------- 72

Introduction ---------- 72
Application of the Elementary Model with the Alberta Universities Data Base ---------- 74
Variations Using Weekly Student Hours as Student Load ---------- 75
Variations Incorporating Graduate Supervision- 76
Variations Using Course Enrolees as Student Load ---------- 76
Variations Including Multipliers for the University of Lethbridge ---------- 77
Application of the Elementary Model with the Public Colleges Data Base ---------- 77
Evaluation of the Application of the Elementary Model ---------- 78
Application of the Elementary Model to Alberta Universities:
TABLE 1: Weekly Student Hours as the Student Load Measure ---------- 80
TABLE 2: Course Enrolees as the Student Load Measure ---------- 81
TABLE 3: Weekly Student Hours as the Student Load Measure-Incorporating The University of Lethbridge Multiplier ---------- 82
TABLE 4: Course Enrolees as the Student Load Measure-Incorporating The University of Lethbridge Multiplier ---- 83
TABLE 5: Application of the Elementary Model to Alberta Public Colleges-Weekly Student Hours as the Student Load Measure ---------- 84
Application of the Elementary Model to Alberta Universities-Weekly Student Hours as the Student Load Measure ---------- 85
Application of the Elementary Model to Alberta Universities-Course Enrolees as the Student Load Measure ---------- 86

ANALYSIS OF THE RELATIONSHIP BETWEEN RESOURCES AND WORKLOAD ---------- 87

Relationships Between Academic Departmental Net Expenses and Workload Indicators ---------- 87
Rank Correlations ---------- 88
Ratios of Laboratory to Non-Laboratory Weekly Student Hours ---------- 88
Analysis of Cost per Workload Indicators in Groups ---------- 89
Relationships Between Workload Indicators and Full-Time Equivalent Faculty ---------- 89
TABLE 1: Rank Correlation Coefficients ------ 91
TABLE 2: Rank of Net Expenses per Workload Measure - University of Alberta -- 92
TABLE 3: Rank of Net Expenses per Workload Indicators - University of Calgary 93
TABLE 4: Rank of Net Expenses per Workload Measure - The University of Lethbridge ---------- 94
TABLE 5: Rank of Net Expense per Weekly Student Hours - University of Calgary versus University of Alberta ---------- 95
TABLE 6: Rank of Net Expense per Course Enrolees - University of Alberta versus University of Calgary ----- 96
TABLE 7: Net Expenses per Workload Measure -- 97
TABLE 8: Ratio of Laboratory to Non-Laboratory Weekly Student Hours - The University of Alberta ---------- 107
TABLE 9: Ratio of Laboratory to Non-Laboratory Weekly Student Hours - The University of Calgary ---------- 108
TABLE 10: Ratio of Laboratory to Non-Laboratory Weekly Student Hours - The University of Lethbridge ---------- 109
TABLE 11: Ratio of Laboratory to Non-Laboratory Weekly Student Hours - All Universities ---------- 110
TABLE 12: Net Expenses in Constant Dollars --- 111
TABLE 13: University of Alberta Net Expense/Course Enrolee ---------- 113

Page

TABLE 14: University of Calgary Net Expense/Course Enrolee ---------- 114
TABLE 15: The University of Lethbridge Net Expense/Course Enrolee ---------- 115
TABLE 16: The University of Alberta Weekly Student Hours/FTE Staff ---------- 116
TABLE 17: The University of Calgary Weekly Student Hours/FTE Staff ---------- 117
TABLE 18: The University of Lethbridge Weekly Student Hours/FTE Staff ---------- 117
TABLE 19: The University of Alberta Course Enrolees/FTE Staff ---------- 118
TABLE 20: The University of Calgary Course Enrolees/FTE Staff ---------- 119
TABLE 21: The University of Lethbridge Course Enrolees/FTE Staff ---------- 119
TABLE 22: Full-Time Equivalent Faculty and Workload ---------- 120

ENROLMENT UNIT WEIGHTINGS COMMITTEE ---------- 130

TABLE 1: Actual and Simulated Operating Grant Allocations and Distributions - 1967-68 to 1972-73 ---------- 137

CLASSIFICATION OF SURVEYED JURISDICTIONS ---------- 138

# APPENDIX W

# PROJECT TASK ON ALBERTA EDUCATIONAL GOALS AND OBJECTIVES

FINANCIAL PLAN PROJECT
FOR COLLEGES AND UNIVERSITIES

TELEPHONE: 403-289-8865

APPENDIX W

1976-06-01

## Project Task on Alberta Educational Goals and Objectives

### Purpose

To gather information which can address the question, "government funding for what?" i.e. What are the stated positions of the government, AAEM, other government departments or agencies regarding goals and objectives for postsecondary education and for the institutions in Alberta? This information is required to ensure that as far as practical any proposed plan meets the specific charge of the terms of reference: "Such a plan must accommodate policies and objectives of the Government of Alberta, the public colleges and the universities. It must, as well, accommodate the essential differences among institutions and subsystems."

### Main Activities:

1. Identify postsecondary system goals (general statements of missions) and objectives (more specific statements related to expected performance) that exist in:
   a) official government statements e.g., policy papers, Alberta Hansard,
   b) Alberta Department of Advanced Education and Manpower documents,
   c) other provincial governments departments or agency statements,
   d) agreements among provinces or between Alberta and Canada.
2. Identify operational policies and other procedures which imply certain goals and objectives for postsecondary educational institutions.
3. Identify for each public college and university statements of appropriate institutional functions which:
   a) have been approved by AAEM or predecessor,
   b) have been approved by Institution and submitted to AAEM or predecessor,
   c) form part of the informal yet generally agreed context for practical interaction between Institutions and AAEM (e.g. issues and concerns recorded in minutes of meetings or correspondence)
4. Describe differences, conflicts or ambiguities in identified goals or objectives among or between:
   a) government departments,
   b) sectors - public colleges, technical institutes, universities,
   c) institutions within a sector.
5. List programs which have been approved by AAEM for implementation in a public college or university including any descriptive documentation which indicates or elaborates on the recognized role of the institution with respect to the program or more generally circumscribes appropriate institutional functions.

**Deadline:** July 30, 1976

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77-03-31

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